

QUARTERLY REVIEW PSYCHIATRY *of* AND NEUROLOGY

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QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY

Volume 5



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WINFRED OVERHOLSER, M.D., *Editor-in-Chief*

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FOREWORD

The purpose of the *QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY* is to present promptly brief abstracts, noncritical in character, of the more significant articles in the periodical medical literature of Europe and the Americas.

For reader reference, the abstracts are classified under the following general headings:

PSYCHIATRY

1. Administrative Psychiatry and Legal Aspects of Psychiatry
2. Alcoholism and Drug Addiction
3. Biochemical, Endocrinologic and Metabolic Aspects
4. Clinical Psychiatry
5. Geriatrics
6. Heredity, Eugenics and Constitution
7. Industrial Psychiatry
8. Psychiatry of Childhood
9. Psychiatry and General Medicine
10. Psychiatric Nursing, Social Work and Mental Hygiene
11. Psychoanalysis
12. Psychologic Methods
13. Psychopathology
14. Treatment
 - a. General Psychiatric Therapy
 - b. Drug Therapies
 - c. The "Shock" Therapies

NEUROLOGY

1. Clinical Neurology
2. Anatomy and Physiology of the Nervous System
3. Cerebrospinal Fluid
4. Convulsive Disorders
5. Degenerative Diseases of the Nervous System
6. Diseases and Injuries of the Spinal Cord and Peripheral Nerves
7. Electroencephalography
8. Head Injuries
9. Infectious and Toxic Diseases of the Nervous System
10. Intracranial Tumors
11. Neuropathology
12. Neuroradiology
13. Syphilis of the Nervous System
14. Treatment
15. Book Reviews
16. Notes and Announcements

In fields which are developing as rapidly as are psychiatry and neurology, it is obviously impossible to abstract *all* the articles published—nor would that be desirable, since some of them are of very limited interest or ephemeral in character. The Editorial Board endeavors to select those which appear to make substantial contribution to psychiatric and neurologic knowledge and which promise to be of some general interest to the readers of the *REVIEW*. Some articles, highly specialized in character or concerning a subject already dealt with in an abstract, may be referred to by title only at the end of the respective sections.

The Editorial Board will at all times welcome the suggestions and criticisms of the readers of the *REVIEW*.

WINFRED OVERHOLSER, M.D.
Editor-in-Chief

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An important book for every physician... vital data on Marihuana Addiction



The title, "Marihuana in Latin America, The Threat it Constitutes," does not do justice to the wide scope of this monograph. While Dr. Wolff has placed particular emphasis on Latin American aspects, his discussion is of general application and interest. He has made a painstaking review of information on the abuse of cannabis. It is a much needed compilation of current knowledge in one volume. The author has done his usual erudite, well documented job. The style is interesting, and the book is recommended to readers desiring a comprehensive and accurate view of this field. The bibliography is extensive.

**—Journal of the
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This monograph on marihuana, written by an outstanding expert in the field of narcotic drugs, is probably the most complete report on this interesting drug. It covers every aspect of the significance of marihuana (hashish) as well from the historical, botanical, pharmacological and medical as from the economic and forensic viewpoint. Written in a brilliant style, it deserves the close attention of all circles concerned with the implications of narcotic drugs.

—The Psychiatric Quarterly

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Complete Control of Seizures— The New Goal In Anti-Epileptic Therapy

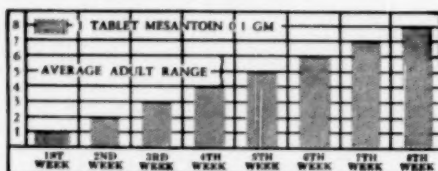
The goal in the treatment of epilepsy today is to eliminate all seizures in the epileptic. According to Dr. Frederick Gibbs, President of the American Branch of the International League Against Epilepsy, 85% of the 1 million epileptics in the United States are offered new hope with the anticonvulsant drugs available today. He suggested that only 5% of all of these patients are totally intractable but did point out that 20% do not respond satisfactorily to the available drugs.

Mesantoin (3-methyl-5, 5-phenyl-ethyl-hydantoin), a new anticonvulsant, makes possible a greater degree of control and a wider range of dosage than has heretofore been possible with the hydantoins. The high anticonvulsant action of Mesantoin was first indicated in experimental work on animals by Toman and Goodman, *Physiol. Rev.* 28: 409 (Oct.) 1948, where Mesantoin demonstrated a protective index of 11.1 as compared to 4.5 for the next most effective hydantoin.

According to Kozol ("Epilepsy", *A. Research Nerv. & Ment. Dis., Proc.*, 26: 404, 1947) "The frequency of their attacks were reduced to one-twentieth of what they had been prior to Mesantoin treatment. This can be expressed in a different way with the statement that over two-thirds of the patients averaged a 95 per cent improvement as judged by the reduction in the frequency of attacks."

Loscalzo, *J.A.M.A.* 135: 496 (Oct. 25) 1947 stated "This interim study as well as the studies of Clein and Kozol support the preliminary observations of 1945 that 3-methyl-5, 5-phenyl-ethyl-hydantoin Mesantoin is superior

to other hydantoins in present use in the treatment of grand mal seizures."



PROPER DOSAGE PROCEDURE

It is important to continue increasing dosage until the patient is completely seizure-free, unless limited by side-effect.

The bibliography below lists some of the publications on Mesantoin and reprints of many of these papers are available to physicians on request.

- TOMAN, J. E. P., and GOODMAN, L. S.: Anticonvulsants, *Physiol. Rev.* 28: 409-432 (Oct.) 1948.
 KOZOL, H. L.: Epilepsy, Treatment With New Drug 3-Methyl 5, 5-Phenyl-Ethyl-Hydantoin (Phenantoin), *Am. J. Psychiat.* 103: 154 (Sept.) 1946.
 LOSCALZO, A. E.: Treatment of Epileptic Patients With A Combination of 3-Methyl 5, 5-Phenylethyl-Hydantoin and Phenobarbital, *J. Nerv. & Ment. Dis.* 101: 537 (June) 1945.
 LOSCALZO, A. E.: The Control Of Epilepsy, *J.A.M.A.* 135: 496 (Oct. 25) 1947.
 KOZOL, H. L.: The Treatment Of Epilepsy With Methyl-Phenyl-Ethyl-Hydantoin (Mesantoin) in "Epilepsy", *A. Research Nerv. & Ment. Dis., Proc.*, 26: 404, 1947.
 LENNOX, W. G.: Two New Drugs In Epilepsy Therapy, *Am. J. Psychiat.* 103: 159 (Sept.) 1946.
 FETTERMAN, J. L., and WEIL, A. A.: Practical Aspects Of Epilepsy (With Special Consideration Of Epilepsy In Children), *M. Clin. North America*, Boston No., p. 1273 (Sept.) 1947.
 AIRD, R. B.: The Treatment Of Epilepsy With Methyl-Phenyl-Ethyl Hydantoin (Mesantoin), *California Medicine* 68: 141 (March) 1948.
 HARRIS, T. H., and OTTO, J. L.: Use Of Hydantoin (Mesantoin) As Anti-Convulsive Drug, *Texas State J. Med.* 43: 328 (Sept.) 1947.

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QUARTERLY REVIEW OF PSYCHIATRY and NEUROLOGY

Volume 5



Number 2

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PSYCHIATRY

ADMINISTRATIVE PSYCHIATRY AND LEGAL ASPECTS OF PSYCHIATRY

Certain Methods of Psychiatric Investigation and Their Value as Methods of Legal Investigation (*De certaines méthodes d'investigation psychiatrique et de leur valeur en tant que méthodes de diagnostic judiciaire*). JEAN BOBON, UNIVERSITY OF LIÈGE, BELGIUM. *Acta neurol. et psych. belg* 49: 588-602, Aug. 1949.

When a psychiatrist is employed by the court to make a medical diagnosis, it is his duty to employ, as to the mental state of the patient and his responsibility for his acts, any method and all methods by which the correct diagnosis can be established. The use of certain of these methods in court or police investigations is a different matter. The use of the lie detector—a method of recording certain emotional reactions by a galvanometer—and the use of narco-analysis or subnarco-analysis in such investigations are discussed. Narco-analysis is recognized as an aid in psychodiagnosis and a valuable method of treatment in certain cases in the hands of an expert psychiatrist. But narco-analysis does not necessarily result in obtaining the truth in regard to a person's actions or motives. It is in no sense a "truth serum," as has been claimed. In court investigations there is danger of misuse of such methods, and of introducing methods of an inquisition without regard to modern judicial principles of the individual's rights. 33 references.

The Problem of Chemical Narco-Analysis in Legal Medicine (*Le problème de la narco-analyse chimique en médecine légale*). A. CHAPLIN, BESANÇON, France. *Ann. méd. lég.* 29:161-66, July-Aug. 1949.

In his experience with narco-analysis with pentothal, the author has found that in over 50% of cases the patient does not talk freely under narco-analysis nor answer all questions, nor recall memories that he does not wish to recall. There is, in fact, no "truth serum." Narco-analysis, therefore, is not a method for police investigation of criminals, although it may not violate the rights of the individual to any greater extent than other methods of police investigation now in use. But when a person is referred by the court to an expert psychiatrist to determine whether or not he is responsible, narco-analysis may be employed by the psychiatrist, because, in expert hands, it often proves valuable in making a psychiatric diagnosis, and in a shorter period of time than by psychoanalysis alone. It is often a valuable method of treatment which the psychiatrist should employ.

Some Sources of Error in the Neuropsychiatric Statistics of World War II. WILLIAM A. HUNT AND CECIL L. WITTON, EVANSTON, ILL. J. Clin. Psychol. 5:350-58 Oct. 1949.

After extensive participation in Naval neuropsychiatry during World War II and subsequent research experience involving the handling of large numbers of Naval medical case records and the statistics resulting therefrom, the authors offer a classification of the common sources of error in military neuropsychiatric statistics. These sources of error are classified under "failure to diagnose" which is divided into "simple misses," "deliberate misses," "misses attributable to the lack of any organized means of detection," and "misses attributable to the absence of any available channel for disposal"; and "false diagnosis" which is broken down into "simple mistakes," "false positives," "deliberate distortions" and "diagnostic fashions." Concrete examples of these types of error are furnished and their effect upon the available statistics is stressed. Attention is also called to certain sampling errors which vitiate many conclusions currently drawn from military statistics, as well as to the prevalence of simple clerical errors in the handling of statistical material from the field. 7 references. 1 table.—AUTHOR'S ABSTRACT.

ALCOHOLISM AND DRUG ADDICTION

See Contents for Related Articles

BIOCHEMICAL, ENDOCRINOLOGIC AND METABOLIC ASPECTS

Development of Personality in Dystrophia Adiposogenitalis (*Die Persönlichkeitsentwicklung bei der Dystrophia adiposogenitalis*). GION CONRAU, ZÜRICH. Helvet. paediat. acta 4:415-42, Fasc. 5, Nov. 1949.

A study of personality development is presented in 31 cases of dystrophia adiposogenitalis treated at the Children's Hospital of Zürich during the years 1925 to 1934 inclusive, and re-examined in 1947-1948. With regard to physical symptoms, obesity was noted at birth in 5 patients, appeared during the first six years of life in 9, and during the eighth year in one. In 14 patients obesity appeared between the ages of 9 and 13 years; in 17, hospital treatment had no effect on the obesity, which persisted to adult life. In 4 patients considerable, and in 2 a slight permanent improvement followed clinical treatment, and temporary improvement was achieved in 3. Obesity was permanently cured in only 3 patients. In almost half of the cases the genital hypoplasia disappeared when the patient had grown up. No definite relation could be demonstrated between the cessation of genital hypoplasia and that of obesity.

Most of the patients who were re-examined showed peculiarities of personality as regards energy and temperament. As a rule, they were good-tempered and sluggish, lacking initiative, vitality and independence, and suffered from irritability, depressions and other dysphoric moods. Some of the patients exhibited the hypophyseal temperament, i. e., a carefree state of contentment, apathy and resignation. Mild forms of mental debility were often observed,

especially in cases beginning in early childhood. Moodishness and sluggishness so common in dystrophia adiposogenitalis constitute part of the picture of the psychopathologic diencephalic syndrome. Non-typical psychic disturbances were also noted. The physical abnormalities frequently seem to give rise to neurotic syndromes difficult to distinguish from those caused by direct hormone or diencephalic influences. No definite correlation could be demonstrated between the degree and type of psychic disturbance and the degree of physical disturbance in such a small series of cases. Close relatives of the patients were not found to be suffering from frequent psychoses, but obesity and psychopathic peculiarities of character were not uncommon. 49 references. 11 figures. 2 tables.

Influencing a Periodical Psychosis ("Degenerationspsychose") in Connection with Hematologic and Biochemical Alterations. N. SPEIJER, DEVENTER, HOLLAND. *Msschr. Psychiat.* 118:69-76, Aug. 1949.

In a case of periodical psychosis in a man aged 45, the number of red cells in the blood diminished rapidly in the beginning of the psychotic phase, then rose gradually to the initial level at the end of the psychotic phase. The blood calcium level increased in the beginning, and then gradually declined. These changes were noted in all 15 periods during which the patient was observed during the past two years. On a low calcium diet, the periods were of much shorter duration, corresponding to the amount of calcium in the diet. It is hoped that a point will be reached when the patient will be entirely free from the psychotic stage. Further investigation is urged. It is possible that only a group of the periodical psychoses will react in this manner.

CLINICAL PSYCHIATRY

General Pathologic Findings Associated with Cases of So-Called Functional Psychoses. CHARLES RUPP AND GEORGE WILSON, PHILADELPHIA, PA. *J. Nerv. & Ment. Dis.* 110:419-24, Nov. 1949.

A group of 37 relatively young patients with acute functional psychoses, dying within two weeks of hospital admission, and studied in the Laboratory of Neuropathology at the Philadelphia General Hospital during the past ten years, afforded an opportunity to evaluate the general postmortem findings from the standpoint of possible somatic etiologic factors. All patients included in a survey died within two weeks of admission except for one who died on the 26th hospital day while receiving insulin shock therapy. No patient was older than 50 at the time of death. The clinical diagnoses were: manic depressive psychosis, 11; involutional melancholia, 2; schizophrenia, 20; undiagnosed psychosis, 3; constitutional psychopathic inferiority with hysteria, 1. The majority had acute psychiatric illness. In the 31 patients in whom the duration of psychiatric

symptoms prior to hospital admission could be established with reasonable accuracy, 28 had been psychotic for less than three months.

The presence of somatic disease was recognized clinically in 14 patients. The associated somatic disease noted on clinical examination included: cardio-renal disease, 9; diabetes, 2; lung abscess, 1; parotitis-terminal, 1; cancer of the breast, 1. Clinically these somatic disorders were not considered as having any etiologic significance in relation to the psychiatric symptoms, although all the patients studied died within two weeks of admission, notwithstanding the fact that the primary diagnosis had been functional psychosis.

At necropsy, the most striking finding in this group of relatively young individuals was the prevalence of various forms of organic disease of the heart which were found in 36 cases. Fifteen had hypertensive heart disease, 8 arterio-sclerotic; 1, rheumatic; 1, chronic pericarditis, and 11, chronic myocardial degeneration. In addition to cardiovascular pathology, congenital hypoplasia of the heart and aorta was noted in 7. Infections of various types were prominent in 13; carcinoma with metastases was found in 3. On gross neuropathologic examination, a cerebellar pressure cone pointing to brain edema was found in 13. Focal cerebral vascular lesions were present in 9, calcification of the intracerebral blood vessels in 7, and marked cortical atrophy in another 7. Evidence of congenital malformations of the brain was found in 20.

While visceral pathology has been noted in a large number of cases of functional psychoses, the pathologic findings are usually dismissed as being purely coincidental and without etiologic significance, in spite of the fact that it has long been recognized that many somatic disorders affecting primarily extraneural tissues produce marked mental dysfunction. Therefore, it does not appear unreasonable to suspect that the vascular disturbances, infections and the visceral pathology noted in this series of cases are more than coincidences and may contribute to an altered cerebral metabolism which is expressed clinically as a psychosis. The chief feature of interest in the general pathologic findings centers on the marked degree of organic cardiovascular disease found in a group of young patients in whom so high an incidence of cardiovascular involvement would not be anticipated.

The marked general cardiovascular involvement is of some significance in contributing to the production of the psychiatric symptomatology. However, pathologic findings contributing to cerebral circulatory impairment should be considered as but one of numerous physiochemical factors which may be of etiologic importance. Awareness of the existence of somatic pathology, and its importance as a contributory factor in the production of psychiatric symptomatology, offers an additional approach in the development of a sound, all-inclusive, biologic therapy. 3 references.—AUTHOR'S ABSTRACT.

Two Years of Sexology. HARRY BENJAMIN, M.D., NEW YORK, N. Y.
Am. J. Psychotherapy 3:419-27, July 1949.

This survey makes no pretense of completeness. It is devoted mainly to

the monumental report by Kinsey, Pomeroy and Martin on "Sexual Behavior in the Human Male" and the re-issue of "The Ethics of Sexual Acts" by Rene Guyon, the French jurist and philosopher, two outstanding milestones in the history of sexology. The Kinsey report makes a wide breach in the wall of Puritan prejudice, but it is only the entering wedge, the first in a series of eight scientific assaults planned by Kinsey and his associates. The book is not a report on the sex life of pathologic individuals, at odds with society and the law (like Krafft-Ebing's "Psychopathia Sexualis" and others), but a courageous attempt to analyze the behavior of the average man.

The Kinsey report engendered many popular interpretations of the startling data submitted. Foremost among these is a symposium fathered by Albert Deutsch, called "Sex Habits of American Men." "American Sexual Behavior and the Kinsey Report" by Morris Ernst and David Loth, likewise deserves unqualified recommendation. Less successful is a small booklet about the Kinsey report by eleven specialists. Severe criticism came mainly from writers who profess to see in Kinsey's book not only an attack on conventional morals but—strange to say—on religion. The outstanding example of this attitude was a symposium in a widely read digest magazine which focused adverse comments, principally by religious leaders. The magazine excluded or ignored practically all comments favorable to Kinsey. It was a "loaded" symposium.

Guyon, author of "The Ethics of Sexual Acts," a legal expert, not a physician, investigated the sex life of people everywhere like Kinsey but, unlike the American, he draws definite conclusions and makes specific recommendations.—
AUTHOR'S ABSTRACT.

Psychiatry and Religion. JOHN D. CAMPBELL, ATLANTA, GA. J. M. A. Georgia 38:317-21, Aug. 1949.

Psychiatry is still being confused with religion with the result that many mentally ill patients are prevented from seeking psychiatric treatment. Religion is defined as a belief binding man's spiritual nature to a supernatural being. It recognizes his emotional side and encourages a regular, temperate, purposeful life to produce the greatest peace of mind. Psychiatry recognizes the need for satisfactory religious adjustment and has borrowed the practice of confession from religion in order to encourage the patient to discuss his problems and diminish his emotional load. Religion deals with both normal and abnormal persons while psychiatry deals essentially with the ill man, with pathologic or abnormal mental processes and aberrations. Certain mental diseases characterized by melancholia and depressed spirits have increased the confusion between religion and psychiatry, since depressed persons feel unworthy and frequently have guilt complexes which are actually symptomatic and not etiologic. Guilt complexes may become delusional. Some comparatively trivial actual misdeed may be misinterpreted by the patient and even by the physician as the cause of the melancholia. Disturbing emotional experiences are only precipitating factors,

however; recognized psychiatric entities such as schizophrenia, involutional melancholia, and manic-depressive psychosis are usually found to be the basic condition.

Psychiatry and religion are actually entirely different pursuits, although having some common factors. Religion seeks to provide spiritual and emotional adjustment while psychiatry is a special branch of medicine concerned with the diagnosis and treatment of abnormal and diseased mentalities. Ministers may encounter unexpected mental illness in members of their congregations and psychiatrists must not overlook the importance of religion in the treatment of their patients. Ministers and physicians, jurists and legislators must understand the difference between sin and abnormal behavior. 2 references.

Instincts and Emotions in an Anencephalic Monster. J. M. NIELSEN AND R. P. SEDGWICK, LOS ANGELES, CALIF. *J. Nerv. & Ment. Dis.* 110:387-94, Nov. 1949.

An anencephalic monster was studied during its 85 days of life. Crying was normal and occurred in response to rough handling and to hunger. It showed signs of contentment when cuddled and would become quiet when a finger or nipple was placed into its mouth. It sucked vigorously. It had an active "Moro reflex," throwing its arms out in obvious fright when allowed, in the supine posture, to fall two inches on our hands. It was able to hang by its reflex grasp for at least thirty seconds (it was never allowed to fall). Bowel and bladder function were normal.

Autopsy showed no structure above the thalamus and only a part of that nucleus. There were no pyramidal tracts. The conclusion is drawn that crude instincts and emotions must have their neuronal pattern in the structure present and this conforms to the impression previously gained from a study of Flechsig's sections of newborn and premature infants in which there is no myelination of any of the association systems of the pallium. It is agreed that the cerebrum contributes enormously to emotions in a normal person by providing knowledge, conditioning and memory which form material for the emotions. 4 figures.—
AUTHOR'S ABSTRACT.

GERIATRICS

See Contents for Related Articles

HEREDITY, EUGENICS AND CONSTITUTION

See Contents for Related Articles

INDUSTRIAL PSYCHIATRY

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PSYCHIATRY OF CHILDHOOD

A Study of Sterilized Persons from the Laconia State School. BETSEY SCOTT JOHNSON, LACONIA, N. H. *Am. J. Ment. Deficiency* 54:404-08, Jan. 1950.

After thirty years of experience with a law for selective sterilization, a study of 264 cases, the total number sterilized in that period, was recently made, with the following findings: 1) 69% of the children born to these sterilized persons before sterilization were illegitimate; 2) public funds have supported 46% of the surviving offspring and public funds have partially supported another 42%; 3) 12% have been supported without public aid. Concerning the mental level of these offspring, 26% of those available for evaluation are average, 38% retarded and 35% mentally deficient. Forty-seven per cent of these sterilized persons have been self-supporting, that is, 40% of the girls and 63% of the boys. Forty-eight have married, that is, 59% of the girls and 25% of the boys. The divorce ratio among those married, including both male and female, is 22%, that is, 23% for the girls and 19% for the boys. The per cent of satisfactorily adjusted couples is 42% for the girls and 43% for the boys.

Segregation of 125 self-supporting persons discharged from the School after sterilization would have cost at least \$338,974. From the collected data it is calculated that the sterilization of 264 feeble-minded persons will prevent the birth of 550 children of which 200 would be mentally deficient, 210 retarded, 250 supported entirely and 230 partly supported from public funds. Perhaps the greatest reason why no more sterilizations were done was the lack of funds.—
AUTHOR'S ABSTRACT.

Phenylpyruvic Acid Factor in Mental Deficiency and Mental Illness. SOL LEVY AND H. A. PERRY, MEDICAL LAKE, WASH. *Am. J. Ment. Deficiency* 54:73-80, July 1949.

The beginning of this century has brought about a considerable change in our concept of the etiologic factors of intellectual retardation. While previously mental deficiency was considered more or less an inherited disease, more recently it has been found that intellectual retardation is not a disease entity as such but in the majority of cases represents a symptom of some underlying organic brain disorder. Thus the main causes were recognized as: 1) hereditary or endogenous, and 2) acquired or exogenous. Among the latter group it was found that any injury, inflammation, infection, or degeneration occurring before, during or after birth and involving the brain tissue may produce irreversible brain damage, with mental deficiency the main symptom. Furthermore, birth injury, as well as the common diseases of childhood, can also act as major offenders in this respect. The first classification includes certain well-defined pathologic types such as amaurotic idiocy, mongolism and tuberous sclerosis, but in a minority of cases it was also found that an alteration of the metabolism of one of the amino acids, phenylalanine, was responsible, or at least an associated factor, for this type of

mental deficiency. This was first described in 1934 by Fölling as "imbecillitas phenylpyruvica." In this country Jervis described it as "phenylpyruvic oligophrenia," and in England, Penrose chose the term of "phenylketonuria." Up to this time more than 200 cases of this condition have been reported in the world literature. All the cases show the same characteristic symptoms and all authors seem to agree that the disease is inherited and is transmitted as a recessive characteristic. The intellectual defect is said to be rather severe since approximately 75% of the patients were classified as imbeciles and 30% as idiots. As such the disease is not regarded as progressive, but merely as a severe development defect. There are characteristic physical and neurologic findings, but the most pathognomonic feature is the demonstration of phenylpyruvic acid in the urine, a test which is rather simple.

All studies thus far on this disorder were carried on in institutions for the feeble-minded and thus the condition of phenylketonuria was searched for only in feeble-minded individuals. No investigation in this respect had been done on patients suffering from mental illnesses other than mental deficiency. For this reason, the present study was undertaken with both mentally defective patients hospitalized in a State institution for the feeble-minded, and with patients suffering from mental illnesses and hospitalized in a State institution for the mentally ill. Urinary examinations for phenylpyruvic acid were carried out in 1408 intellectually retarded children at Lakeland Village (an institution for the feeble-minded) and in 1850 mentally ill patients under treatment at Eastern State Hospital. Within this latter group all types of mental illnesses were represented, such as dementia praecox, affective psychoses, organic psychoses, as well as psychoses with mental deficiency and numerous cases of prophebecephrenia. In addition to the urine examinations, complete physical, neurologic and psychometric examinations were done on each patient and the social as well as developmental and family history were studied with care.

The results of this study indicated that the incidence of phenylketonuria was 0.693% among the intellectually retarded and 0.108% in the mentally ill group. However, all patients with phenylketonuria comprising the mentally ill group were found to be basically feeble-minded. Thus the conclusion was drawn that the entity of phenylketonuria is definitely limited to the intellectually retarded while it does not appear to be a factor whatsoever in true mental illness. This study also confirms the previously reported tendency of these patients toward a well-defined constitutional body make-up, and the characteristic neurologic as well as laboratory manifestations were confirmed. Furthermore, this study seems to indicate that the condition is based on heredity since a positive excretion of phenylpyruvic acid was obtained in the urine of family members of the affected patients. The results strongly suggested that the intellectual defect in the affected patient is much more severe than has been assumed heretofore. Whereas other authorities stated that only 30% of the affected could be classified as idiots and 70% as imbeciles, this study indicated that at least 82% could be classified definitely as idiots while the rest should be classified as imbeciles. No significant deviations in the age of the parents at the time of conception, ordinal position of

the patient, consanguinity of parents, instrument birth, trauma at birth, and early developmental history of the patient were found which could be considered as causative factors in this condition. 4 references.—AUTHOR'S ABSTRACT.

PSYCHIATRY AND GENERAL MEDICINE

The Emotions Under a Microscope. C. CHARLES BURLINGAME, HARTFORD, CONN. J. Oklahoma State M. A. 42:468-72, Nov. 1949.

Although much remains unknown concerning the emotions and the emotional components in disease, it is quite certain that the body and mind, the soma and the psyche are one and inseparable in sickness and health. This being true, psychologic symptomatology, along with psychologic affect and effect, should be a vital concern of medicine and the rest of science.

The concept that there are on the one hand "mental" diseases, entirely psychological in cause and effect, and on the other hand "physical" diseases with no emotional components, is completely outdated. All diseases might be graphed in a gigantic rectangle in which a line is drawn from the lower left to the upper right corner. Above this line could be placed the psychologic components of a disorder, and below the line the physical components. In this rectangle of disease, an organic disease such as general paresis would probably fall equally above and below the line. Virtually all the psychiatric disorders, even those still viewed as "functional," probably have certain, perhaps major, components below the line on the physical side. The "mental" diseases are "mental" only in the sense that their physical accompaniments, or recordings, have not yet been demonstrated. Certain laboratory efforts in the last fifteen years lend support to this conception. Investigations carried on with the ultraviolet-spectromicroscope have demonstrated that the function of the nerve cell is associated with cellular protein-rebuilding processes which, in turn, seem to be vitally affected by physical and emotional stimulation and excitation.

Physical diseases, likewise, have a psychologic recording. A person suffering from a physical disease inevitably undergoes some change in his psychic life—profound, as in the delirium of typhoid fever, or relatively minor, as in the patient with a carbuncle. In the rectangle of disease all physical ailments must be viewed as partly above the line. Furthermore, laboratory findings point to psychologic factors as one of the causes of those physical diseases which fall into the vast group of psychosomatic disorders. What medicine knew long ago but then forgot with the advent of the microscope is again being recognized—that the whole man, including his emotions, is the vehicle and the victim of bacterial and all other forms of sickness.

It is hoped that this new appreciation for the interrelationship between the psychologic and the physical in disease will weld psychiatry and medicine more closely together. The psychiatric problem is the problem of medicine as a whole. The answer to the problems of mental disease will not come from psychiatry as an isolated specialty: it will come from the interest and hard work in the pure science laboratories and the clinical strivings in every branch of medicine, including psychiatry.—AUTHOR'S ABSTRACT.

Some Impersonal Factors in Illness. F. R. C. CASSON, LONDON, ENGLAND. *Lancet* 2:681-84, Oct. 15, 1949.

Various psychological reactions, chiefly of importance to the patient, take place between him and his human environment (doctor, nurse, fellow patients and family). Sick people regress to some extent, both physically and mentally, to a childish level, and the doctor who assumes responsibility for them steps into a parental role, usually that of a father. He is thus viewed with ambivalent feelings derived from the patient's early life Oedipus relationship with his actual father—love and admiration co-existing with hate and fear. Doctors are regarded as good father figures, but the opposite view is also widely held among primitive peoples and in the modern cinema. It is important for doctors to recognize these negative feelings in the patient, in all their varied disguises. Surgeons are especially likely to be regarded as malevolent figures as they cut or remove parts of the body.

The sick person's regressive tendencies appear most clearly at home. The well-adjusted individual regrets illness and strives to recover quickly; the obsessional overconscientious person may feel himself a burden and become depressed; the immature may exploit his family through illness. "Secondary gain" may accrue from organic as much as from functional disorders. In illnesses that run in a family, not only genetic and infective factors operate but also identification with others, or what Dunbar calls "exposure to illness." The patient's family also has mixed feelings about him. Love and solicitude are sometimes exaggerated to hide hostility or desires to dominate him. Hostility may be displaced onto the doctor or hospital. Any ingratitude on the patient's part serves his relatives as excuse for their resentment. Some relatives try to coddle the patient and encourage his liability to regress. 5 references.—AUTHOR'S ABSTRACT.

Psychogenic Rheumatism. WILLIAM TEGNER, DESMOND O'NEILL AND ANNA KALDEGG, LONDON, ENGLAND. *Brit. M. J.* 4620:201-04, July 23, 1949.

"Rheumatism" may be defined as a painful disorder of the locomotor system; the term covers a great variety of syndromes. It has long been recognized that many of the patients who present themselves for treatment at a Department of Physical Medicine do not suffer from any of the common disease states of physical origin, but rather from a disorder which may be regarded as psychogenic. A description of "psychogenic rheumatism" was given by Hench and Boland in 1946; in their series of 800 patients, this condition was the third most common diagnosis.

Fifteen patients were referred by the clinician for detailed psychiatric examination; in each case the patient was first examined by routine clinical methods. The group contained 14 women and one man. A control group of patients suffering from a painful disorder of which the cause was known was investigated by the same means; this group consisted of subjects of the same age and sex distribution, and broadly of the same social class. The psychiatric examination was conducted along three main lines: clinical interview, psychometric examination

by two projective methods (Rorschach test and Thematic Apperception test), and appraisal of information given by a relative, employer, or friend.

The form of complaint differed as between the two groups. Most of the control group used brief and consistent terms to describe their discomfort; most of the patients used compound or unusual terms—"twisting," "heaviness," "stinging and stabbing." In most of the control group, discomfort was limited to the area of the lesion or an area related to it; the distribution of discomfort, in the test group, was commonly very extensive. In the controls, the most common aggravating factor was touch or movement of the affected part; among the patients, a variety of factors were mentioned, including "relaxation," and "noise." Analgesic drugs produced improvement in 6 out of 7 controls in which they were tried; of 8 patients, none noticed any effect from these drugs. Variations in the severity of discomfort throughout the twenty-four hours, or from day to day, showed no great difference between the groups. The effect of climatic conditions was similar in both groups.

Associated symptoms—depression, tension, irritability, poor sleep or phobias—were present in 14 of the patients and in 5 of the controls. In 2 of the latter the nervous symptoms were considered to be secondary to the somatic disorder. Two of the controls and 13 patients became aware of the onset of the disorder in circumstances associated with emotional tension. In 10 of the control group, no significant psychiatric abnormality was found; anxiety from sexual maladjustment was found in one, and a history of previous neurotic illness in two. With two possible exceptions, the rheumatic condition in every patient in the test group formed one component of a reaction pattern which was also expressed in disturbance of affect and behavior. The Rorschach results showed a much greater degree of disturbance in the patient group than in the controls; in the T. A. T., the patients showed in general a greater preoccupation with themes of violence, injury, crime and punishment, murder, and suicide. The control group showed the physical signs appropriate to the physical disorder from which they were suffering; the test group showed no signs of a skeletal abnormality.

Short case histories of the patient group are given, with an attempt at formulation of the pathogenesis. From this study, the principal diagnostic features of psychogenic rheumatism appear in: 1) expression of complaint; 2) area of discomfort; 3) failure to conform to an established organic syndrome; 4) setting of the illness in relation to the patient's life situation; and 5) lack of response to physical treatments. Treatment methods are briefly discussed. 4 references. 1 table.—AUTHOR'S ABSTRACT.

Psychiatric Factor in Essential Hypertension. WALTER I. TUCKER, BOSTON, MASS. *Dis. Nerv. System* 10:273-78, Sept. 1949.

This is a report on a series of 100 patients with essential hypertension studied at the Lahey Clinic. All were under 55 years of age and most had no significant renal, cardiac or cerebral involvement; 65 had a positive family history. They all had a thorough examination in the medical department. The personality characteristics displayed by 69 of these patients were those of worrisomeness,

conscientiousness, ambitiousness and emotional suppression or repression. Such characteristics were present in varying degrees, in some as a background of a neurosis and in others as essentially normal personality characteristics. Traumatic emotional experiences representing threats to the patient's personal security, particularly in his relationships with persons important in his environment, were noted in 65 patients. The 68 patients considered to be suffering from neuroses displayed mostly conditions of anxiety and tension with varying degrees of psychasthenic and hypochondriacal features.

The outstanding observation in this study was the importance of the discovery of hypertension in precipitating or aggravating the neurotic symptoms. Secondary anxiety over the condition itself is emphasized as an important factor in the production of symptoms and disability. In the discussion it is emphasized that constitutional factors must not be forgotten in considering both the personality characteristics and the tendency to develop hypertension. No definite conclusions can be drawn regarding the relationship of personality and emotional factors to the development of hypertension, but it is suggested that such factors are more likely aggravating than causative. A follow-up study of these patients is to be published. 5 references. 1 table.—AUTHOR'S ABSTRACT.

Common Surgical Lesions Causing Mental Disorders. ALOIS POLLAK AND GEORGE N. THOMPSON, LOS ANGELES, CALIF. *J. Nerv. & Ment. Dis.* 110:400-12, Nov. 1949.

Recent emphasis on the psychosomatic origin of some of the common surgical lesions has influenced their treatment to an extent that a consideration of this problem from the surgical viewpoint seemed justified.

The study of personality patterns, as outlined by Alexander and the Chicago group, has helped to clarify some of the problems with which the surgeon is confronted in the treatment of gastro-intestinal lesions but nevertheless, the evaluation of persistent cellular pathologic conditions is the important factor for successful surgical treatment.

Impaired intestinal absorption may lead to changes in water, mineral and vitamin balance important for the proper functioning of nerve cells. Also, severe dehydration seems to play an important role, as seen in the acute post-operative psychosis which may be compared to the hallucinations and deliria experienced by those who, after being shipwrecked or stranded in a desert, have to go for many days without water or food. Persistent vomiting in early pregnancy, followed by dehydration and abnormal blood chemistry, may be a contributing factor for the mental disorders of pregnancy. In the chronically ill patient, the use of large amounts of sedatives and anodynes over a long period of time will add to the confusion, and sometimes mask organic lesions.

Nine cases of mental disorders which seemed to result directly from surgically treatable lesions were presented. These cases were analyzed according to the onset of the mental symptoms and the time of onset of the lesion. In all of these cases a direct relationship was found between the mental disorder and the physical disorder which seemed to be etiologic. The cases fell into two general groups,

those with gastro-intestinal lesions and those with lesions of the genito-urinary tract. The patients with gastro-intestinal lesions suffered primarily with anxiety states or agitated depressions; those with genito-urinary tract lesions developed reactive depressions. In each case the patient showed marked improvement with surgical treatment of the lesion. In nearly all cases there was complete recovery from the mental disturbance.

The disturbance of function resulting from the surgical lesions resulted in sufficient metabolic disturbance to alter cerebral physiology and result in mental disorder. Also the underlying mental disorder may have been present, that is, masked or latent, and brought out by the physiologic disturbance. Nevertheless, it can be stated that these cases represent mental disorders directly caused by surgically treatable lesions. The sequence is essentially the reverse of the cases that are found in the usual psychosomatic concept. 9 figures.—AUTHOR'S ABSTRACT.

The Production of Electrocardiographic Abnormalities by Suggestion Under Hypnosis: A Case Report. LESLIE L. BENNETT, SAN FRANCISCO, CALIF. AND NORMAN E. SCOTT, GALVESTON, TEX. *Am. Pract.* 4:189-90, Dec. 1949.

A study of a normal man, aged 20, has been reported. The subject had no complaints referable to his cardiovascular system, and a routine electrocardiograph tracing was within normal limits. When he was under hypnosis and emotional states of anxiety and anger were produced by suggestion, he developed tachycardia and electrocardiographic abnormalities consisting of a lowering of T_1 and a lowering or displacement of T_2 and T_3 . These disappeared within a matter of 60 to 90 seconds after the subject had been reassured. While the subject was not under hypnosis, similar electrocardiographic abnormalities were not produced by exercise, hyper-ventilation, nor the administration of epinephrine. 6 references. 1 figure. AUTHOR'S ABSTRACT.

Summary of Evidence Relating Life Situation and Emotional Response to Peptic Ulcer. STEWART WOLF, NEW YORK, N. Y. *Ann. Int. Med.* 31:637-49, Oct. 1949.

The cause and mechanism of peptic ulcer are still unexplained, but a large body of experimental evidence supports the view that this disorder, in many instances at least, occurs as a sequel to disturbed gastric function in reaction to significant stresses in the life situation. The steps which support this formulation are: 1) the stomach in peptic ulcer is hyperfunctioning as regards engorgement, blood flow, acid production, motor activity and emptying time; 2) gastric hyperfunction accompanied by epigastric pain of typical "ulcer" type may be induced in human subjects by exposure to situations involving significant personal conflicts; 3) such gastric hyperfunction is apparently mediated through vagus innervation, and is associated with two serious physiologic hazards: a) a lowering of the pain threshold in the stomach, and b) increased fragility of the membrane; 4) gastric juice kept in close contact with a minor lesion leads to further gastric

hyperfunction and may result in the establishment of an ulcer; 5) in subjects with peptic ulcer gastric hyperfunction may be accentuated with the production of hyperacidity, hypermotility and pain by a vigorous discussion of significant personal problems. 15 references. 5 figures.—AUTHOR'S ABSTRACT.

Psychosomatic Factors in Dermatology. CARROLL S. WRIGHT, PHILADELPHIA, PA. *South. M. J.* 42:951-58, Nov. 1949.

There are perhaps no two more widely separated specialties than dermatology and psychiatry; dermatology deals primarily with manifestations affecting the outside of the body, the skin, whereas psychiatry reaches into the depths of the human mind. There is no uniform agreement as to what skin disturbances may be properly classified as functional or as to what Becker calls "neurodermatoses." The author presents a chart in an attempt to grade those cutaneous disorders that may have a psychic factor, from the purely psychic to those in which psychic factors may play a predominant or secondary role down to those in which the psychic factor is questionable.

The success or failure of therapy in neuroses is often determined at the first consultation between the patient and the physician. The physician who has no sympathy or patience with "nerves" and takes a hostile attitude or shows a frank disinterest will usually fail in his therapeutic efforts. On the other hand, the quick assumption that "nerves" are solely to blame and failure to make thorough search for physical causes may also result in therapeutic failure.

When the dermatologist has definitely or with reasonable assurance made up his mind that he is dealing with a psychosis, it becomes necessary to make the patient accept the idea of a psychiatrist and this is by no means easy. The following steps are suggested: 1) inform the family of your diagnosis rather than the patient; 2) consult with the family regarding the possible reaction of the patient when told of such a diagnosis; 3) get the opinion of the family or some member of the family as to whether they would prefer to tell the patient or leave it up to you. If not handled carefully, dissatisfaction on the part of the patient and the family is apt to result with complete loss of confidence and eventual therapeutic failure. 36 references. 1 chart.—AUTHOR'S ABSTRACT.

Physiology and Psychiatry. R. W. GERARD, M.D., CHICAGO, ILL. *Am. J. Psychiat.* 106:161-73, Sept. 1949.

This 1948 Menas Gregory lecture concerns itself with the relation between neural mechanisms and psychologic aspects of behavior. The position is argued that, despite the great gaps that still exist, the pragmatic position is to believe that these will be filled by extension of the present lines of study. The mind-body problem is considered explicitly in terms of the organism and epiorganism and the consequent problems of public and private. A more detailed consideration of causality as between the ordinarily used "physical" and "mental" realms leads into a critical consideration of psychosomatic problems and the issues of free will, purpose (from the point of view of homeostasis and negative feedback) and values (which are seen to operate throughout physiology). In this connec-

tion, arguments are presented for regarding psychoanalysis as fully scientific in principle.

The remainder of the paper is concerned with the particular problems of mind and behavior and the known neurophysiologic mechanisms which begin to account for these. The physiologic discoveries of the last half-century have released neurologic thinking from the telephone system machine and steadily gained greater latitude in time, locus, and quantity for nervous system function. The great progress in analyzing the microphysiology of conduction and synaptic transmission has given some of this freedom; but especially important has been the creation of a dynamic macrophysiology. In this connection, the existence of spontaneous rhythms, of interacting nerve nets, and of steady, extended potential fields, have been especially valuable. The analysis includes a consideration of digital and analogical mechanisms and their operation at different levels between the molecular and that of the total man. 8 references.—AUTHOR'S ABSTRACT.

Acute Psychosis Caused by Dextro-Amphetamine. G. G. WALLIS, J. F. MCHARG AND O. C. A. SCOTT, HASLAR, ENGLAND. *Brit. M. J.* 4641:1394, Dec. 17, 1949.

A man aged 29, after taking 55 mg. of dextro-amphetamine, lost consciousness and subsequently had visual, auditory and haptic hallucinations, with ideas of reference. Within thirty-six hours he became fully rational except for lack of insight. Eight cases of acute psychosis caused by amphetamine drugs are recorded in the literature, but this dose appears to be the smallest ever to have produced such an effect. 10 references.—AUTHOR'S ABSTRACT.

PSYCHIATRIC NURSING, SOCIAL WORK AND MENTAL HYGIENE

Vocational Rehabilitation of the Psychiatrically Disabled. THOMAS A. C. RENNIE, TEMPLE BURLING AND LUTHER E. WOODWARD, NEW YORK, N. Y. *Ment. Hyg.* 33:200-08, April 1949.

The vocational rehabilitation of the psychiatrically handicapped has been long neglected. For more than twenty years the psychiatrically handicapped were excluded from the services available to the physically disabled. The Barden-LaFollette Amendment to the Federal Rehabilitation Law of July 6, 1943, made the psychiatrically handicapped available for service throughout the various state rehabilitation bureaus. Many states, however, have been slow to pick up responsibility for this service and state hospitals have not generally appreciated the need nor asked for the service.

This study was designed: 1) to discover the extent to which people who have been hospitalized for psychiatric illness need vocational rehabilitation services; 2) to work out experimentally effective working relationships between psychiatric hospitals and the state rehabilitation agencies, and 3) to evaluate the results of vocational rehabilitation efforts with patients who have been hospitalized for

mental illness. The study is a preliminary report dealing only with the survey of need and some preliminary conclusions as to working relationships between hospitals and rehabilitation agencies*. In the hospitals surveyed it was found that 10% of patients on convalescent status needed special vocational rehabilitation service and that probably an additional 5% would need the same after further recovery. This is quite in contrast to the small numbers served by the state rehabilitation agencies. In the fiscal year ending June, 1947, only six states had given service to more than 10 patients who had been hospitalized for psychiatric illness and nineteen states had served more.

Finding the patients with a vocational need is not difficult when the entire hospital staff is alert to this probable need and maintains something of a vocational focus in history-taking and throughout the entire course of treatment in the hospital. Selection is primarily the responsibility of the psychiatrist, but he can be aided substantially by the social workers and the psychologists on the staff. Planning should begin at the time of the patient's admission and continue until the patient is satisfactorily readjusted in the community.

Rehabilitation is successful only when there is full participation by the patient in the entire process, namely, vocational counseling, vocational training, physical restoration which may include treatment of psychiatric disabilities, job finding and placement and in the personal counseling which is usually carried on throughout the entire period of rehabilitation. The successful rehabilitation of the psychiatrically handicapped requires very close cooperation between hospital staff and the rehabilitation agency. The counselor should begin his work with patients before they leave the hospital or while on home visit so that the transition from hospital to rehabilitation agency can be made easily. Frequent liaison between the two staffs are needed to acquaint each other with the other's work and to implement the processes of selection, referral and actual rehabilitation.—

AUTHOR'S ABSTRACT

PSYCHOANALYSIS

See Contents for Related Articles

PSYCHOLOGIC METHODS

Stimulus Generalization of Conditioned Responses. GREGORY RAZRAN, QUEENS HOSPITAL, FLUSHING, N. Y. *Psychol. Bull.* 46:337-65, Sept. 1949.

This is a statistical and critical analysis of experimental studies on stimulus generalization in classical conditioning, including all original reports from the Pavlov laboratory during 1924 to 1941. The conclusions reached were: 1) CRs

*The complete study will be published by the Commonwealth Fund late in 1949 under the title "Vocational Rehabilitation of the Psychiatrically Disabled—A Study of Post-Hospital Vocational Needs."

generalize to related stimuli with which the organism has had no previous experience; 2) generalization CRs are consistently weaker than conditioned CRs; 3) CR generalization increases in the initial training of the CR, then decreases, but may increase again with overtraining; 4) the gradient of stimulus generalization is very qualitative, step-like, and crude; 5) the gradient is likely to vary more with the organic dimensions of the organism than with the specific stimuli dimensions in the CR situation; 6) in human subjects, gradients are more clear-cut with verbal than with sensory stimuli; 7) with musical intervals, ratios are more significant in the CR generalization than constituent tones; 8) with flashes of lights as conditioned stimuli, forms are more significant than colors; 9) with words as conditioned stimuli, similarities in meaning are more significant in generalization than similarities in sound and spelling; 10) there is evidence to believe that CR generalization is generated not during the original training for the conditioning, but during the subsequent testing for the generalization. 64 references. 6 tables.—AUTHOR'S ABSTRACT.

PSYCHOPATHOLOGY

Anxiety. Its Initiation, Communication and Interpersonal Management. JURGEN RUESCH, M.D. AND A. RODNEY PRESTWOOD, M.D., SAN FRANCISCO, CALIF. *Arch. Neurol. & Psychiat.* 62:527-50, Nov. 1949.

Pertaining to the therapeutic situation a number of observations and experiments concerning communication and interpersonal management of anxiety have been presented. It was concluded that anxiety is initiated through the concomitant operation of several factors. Predetermined within a certain range is the organism's tolerance for excitation; intensity, sudden increments and rapid repetition of stimulation can produce anxiety and lead to disorganization of behavior. In addition, any stimulus when repeated assumes a certain cue value. A cue which in the past was associated with a threatening situation can initiate an alarm reaction. The organism then anticipates a repetition of danger experienced in the past. Furthermore through assessment of the "gestalt" of a social situation, which includes the observer as an integral participant, impressions of fit, closure, and familiarity will result in appropriate action, while impressions of non-fit and strangeness will be received with suspicion and may result in an alarm reaction.

In human beings transmission of anxiety occurs primarily through verbal and visual channels. Deviations in frequency, timing and intensity of the human voice betray acoustically the presence of anxiety, while visual observation may reveal additional signs of uneasiness. Understanding of the verbal content, shifts in the type of words used, or confusion and lack of understanding are further clues in the detection of anxiety. But beyond the simple issue of transmission, anxiety presents a particular problem inasmuch as it is infectious and can force active participation of originally uninvolved and neutral observers.

The interaction taking place in successful communication can be conceived

of as follows: in successive steps there is clarification of one's own frame of reference, understanding of the other person's frame of reference, mutual understanding, one-sided adjustment to the understood situation, followed by mutual adjustment. From various experiments it was concluded that the process of communication is essential for healthy functioning so that people may combine efforts to cooperate, complement, and increase their ability to cope with animate and inanimate surroundings. The successful management of anxiety generated in daily life seems possible only through the process of sharing and communication. Alleviation of anxiety through personal contact is the process which is basic to all interpersonal relations from babyhood to old age. The ability to communicate and hence to share anxiety seems to constitute that process responsible for feelings of personal security of the individual. In psychotherapy, then, an attempt is made to further those processes which enable the patient to successfully manage his anxiety. As the principal psychotherapeutic tool for alleviation of anxiety this communication can then be utilized in other interpersonal relationships. 33 references. 1 figure. 1 table.—AUTHOR'S ABSTRACT.

The Pathogenic Process in Schizophrenia. WILLIAM L. PIOUS, M.D., TOPEKA, KAN. Bull. Menninger Clin. 13:152-59, Sept. 1949.

The article is a tentative and preliminary presentation of an hypothesis dealing with the pathogenic process in schizophrenia. It is postulated that the normal level of ego-organization is maintained by a well-developed super-ego and that the super-ego functions to contain and hold in check the mortido in situations of frustration.

In schizophrenia there are defects in the development of the super-ego which are associated with a disturbed mother-child relationship. Under conditions of stress and deprivation, the super-ego fails to contain the mortido which then floods the psychic apparatus and constitutes a threat to life. The libido leaves its attachments in the ego to neutralize the mortido. These events constitute the pathogenic process. With return of the libido (restitution), ego-functioning resumes. The less the libido returns, the more archaic is the effective ego-organization which emerges. When the emerging ego-organization is primitive and archaic, the clinical picture is that of schizophrenic psychosis.—AUTHOR'S ABSTRACT.

Psychopathology of the Hard of Hearing (*Zur Psychopathologie des Schwerhörigen*). F. A. QUADFASSEL. Monatschr. f. Psychiat. u. Neurol. 117:338-53, April-June 1949.

The most important and special factor responsible for the difficulties of adjustment of the hard of hearing is the loss or deficiency of their most important receptive sense for social intercourse. This results in isolation leading to suspicion and illusion which, even if transitory, interfere with satisfactory family and social life. The reaction of the patient is of a paranoid nature and differs considerably from that of other physically handicapped subjects. It is the defect itself which causes the reaction and not the person's own attitude toward it. This reaction may be mild or severe according to the duration of the defect, its degree, and the

economic status and occupation of the individual affected. A reactive depression may be released by certain events, but is not a specific reaction. It is not the individual's reaction to the loss of a sense, but rather to the loss of social intercourse. The reaction can be cured and is not a manifestation of an unchangeable trait of character. The great importance of lip reading in helping the patient to a better adjustment is stressed. 78 references.

Aggressive Behavior. THELMA V. OWEN AND M. G. STEMMERMANN, THE OWEN CLINIC, HUNTINGTON, W. VA. *Ment. Hyg.* 33:436-42, July 1949.

Although aggressive behavior is a common symptom of mental illness, it is also a common characteristic of all human behavior. So long as his behavior is confused with his disposition rather than his illness, the mental patient will probably continue to be stigmatized. So long as the mentally healthy fail to recognize in their own thinking the basis for mental disorders, mental illness will continue to be non-preventable.

Five specific examples of aggressive behavior in mental patients are described. In each, the cause of the behavior (delusions or hallucinations) was known and prevention should therefore have been possible, as it was in many other instances. Prevention of aggressiveness depends upon the following positive approaches: 1) recognition of its cause in each case; 2) directing the patient more reasonably and more authoritatively than do his hallucinatory experiences; 3) explaining verbally and by attitude that treatments are therapy, not punishment; and 4) provision of close supervision by adequate numbers of personnel.

Prevention of aggressive behavior is important for many reasons. From the standpoint of the administration, these are obvious. From the patient's standpoint, prevention is an active part of therapy. By obstructing delusions and hallucinations, they fail to win arguments with reality and become that much less deeply fixed. By preventing open acts of aggression, the patient is spared consequent guilt feelings. Guilty feelings were at least partially responsible for his illness in the first place and every effort should be made to avoid adding further guilt to his already overburdened conscience.—AUTHOR'S ABSTRACT.

The Expressive Component of Behavior. A. H. MASLOW, BROOKLYN COLLEGE, BROOKLYN, N. Y. *Psychol. Rev.* 56:261-72, Sept. 1949.

Contemporary psychology, in its preoccupation with practical results and means, is of little service to the artist and other end-oriented individuals interested in such "useless" expressive reactions as beauty, awe and fun. By exploring and applying the differentiation between expressive (useless) and coping (useful) behavior, we may help extend psychology in the direction of a desperately needed humanistic value system. This paper discusses the differences between expression and coping and then applies them to some problems in psychopathology.

Coping is purposive and motivated; determined by environmental and cultural variables; learned; easily controlled; designed to change the environment; characteristically means-behavior and typically conscious.

Expression is unmotivated; determined by the state of the organism; unlearned; often uncontrolled; not "designed" to do anything; often an end in itself and usually not conscious.

COPING AND EXPRESSION:

While coping behavior comes into existence to get something done, expressive behavior is unmotivated although "determined." It reflects, or is part of the state of the organism, i. e., lowered tonus of the depressed person, springiness of the healthy person, etc.

However, the apparent contradictions involved in the concept of motivated self-expression raise a special problem. To illustrate: a good dancer can become a passive instrument, responsive to the music. But few people dance as well as this. Most will, consciously, try to fall in with the music. Training can be a help. But it must be an education in eager abandon and "learning" to drop inhibitions and acculturation. More problems are raised by self-actualization. The actions of people at this motivational level are spontaneous and therefore expressive. The characteristics of the pressure to self-actualize are so different from the wish for love, that if the latter be called a need, the former ought to be called by some other name. Love, safety, respect, etc., are external qualities the organism lacks or needs. Self-actualization is growth motivation (to behave purely expressively) rather than deficiency motivation. One can try to seek spontaneity by solving the prerequisite motivational problems. Thus the difference between coping and expression is resolved at the highest level of development.

Coping behavior is essentially an interaction of the character structure with the world, while expression is essentially an epiphenomenon of the character structure. Several corollaries follow: to understand the character structure, study expressive behavior; coping is not the only or most fruitful behavior to study; the study of the natural world helps the understanding of coping, not expressive, behavior.

RELEASE AND CATHARSIS:

Private expressions of rage, i. e., cursing to oneself, is a special type of behavior, which though essentially expressive, nevertheless has some usefulness to the organism. Probably all such behaviors, which Levy calls release behavior, keep the tension level down by (a) completing an incompleting act (b) draining tension-producing emotions by motor expressions or (c) permitting activity for its own sake. It is likely that catharsis may be a complex variant of release behavior.

It seems desirable to separate those perseverative behaviors that are a coping response to threats to basic needs, from those which simply tend to complete an act and are probably ideomotor phenomena, related to physiologic variables.

REPETITION PHENOMENA:

Repetitive nightmare dreams and symbolic acts are examples of repetition phenomena. Several recent writers see these behaviors as repeated, usually unsuccessful efforts to solve an almost insoluble problem. We may expect permanent repetition, i. e., unsuccessful coping, only when a basic need is threatened and the organism has no successful way of solving the problem.

DEFINITION OF NEUROSIS:

The classical neurosis as a whole, as well as single neurotic symptoms are characteristically coping mechanisms. But since many symptoms have been called neurotic which are expressive it would seem more fruitful to call neurotic only behaviors which are primarily coping. If the symptom is truly neurotic, i. e., coping, then the person will be hurt by the removal of the symptom. On the other hand, if the symptom is expressive, symptom therapy would not be dangerous. It is thus important to differentiate between coping and expressive symptoms in the neurotic person.

CATASTROPHIC BREAKDOWNS:

Analysis of brain-injured patients demonstrated for the first time a difference between feeble coping reactions and catastrophic breakdown which results when coping is made impossible. Catastrophic breakdown is disorganized and purposeless. It is then not coping but expressive behavior. Apathy can also be regarded as the absence of coping rather than a form of it. In theory as well as fact, we expect better prognosis for persons with true coping reactions than for those who have given up coping.

PSYCHOSOMATIC SYMPTOMS:

This distinction is especially useful in the field of psychosomatic medicine. It is here that Freud's mistake of identifying "determined" with unconscious motivation has done the most damage. Practically all neurotic symptoms do have unconscious motivation but many somatic reactions are not motivated and have no function. What a person may wish for—repressing aggressive tendencies, etc.—may be obtained only at an unwished-for and unforeseen somatic price. If a somatic symptom is produced as a neurotic primary gain it should be labeled a conversion or neurotic symptom. However, when somatic symptoms are the by-product of a neurotic process they should be labeled "expressive somatic symptom" and not confused with the process itself. 41 references.—AUTHOR'S ABSTRACT.

Analysis of a Prefrontal Lobe Syndrome and Its Theoretic Implications. THEODORE LIDZ, M.D., BALTIMORE, MD. *Arch. Neurol. & Psychiat.* 62:1-26, July 1949.

A patient whose behavioral pattern was more severely limited following frontal lobe damage than any case reported in detail, was studied intensively. Daily behavior and spontaneous productions were recorded for many months, and test situations were utilized as controlled samplings of behavior. The marked simplification of performance and intellectual functioning permitted clarification of some basic concepts that contribute to the theory of frontal lobe function and of symbolic processes in general. Following postoperative death, the lesions were found to be localized and static due to a vascular accident at an early age; they were limited to the left prefrontal regions and a very small discreet softening of the anterior portion of the internal capsule on the right. However, the study is concerned with the psychologic analysis of the defect in mentation and its influence on behavior.

Much of the patient's behavior was based upon ingrained patterned activity acquired prior to the brain damage. When these retained abilities were discounted, and attention focused upon the capacity to cope with new situations requiring active mentation, the test procedures illuminated a consistent, profound deficiency in a basic component of mental activity. He was unable to consider alternative approaches, or to shift from one associational trend to another without specific external stimulus. It was therefore impossible for him to show real initiative, or any synthetic, analytic, abstract, or categorical thinking. Old associative connections often controlled the content of thought and speech, and influenced behavior, and probably accounted for the symptom of "witzelsucht." The failure of any breadth of associations impoverished the ability to organize past, present, and future into meaningful appreciation of his condition, or of the situation at any moment. The moment seems to have existed in isolation devoid of comparison of past and future. Without anticipation, anxiety is unlikely and perhaps impossible. Without comparison of the present with the past, depressive concern does not occur. However, euphoria was not the only possible state, for in response to appropriate stimulation, rage and joy occurred, but faded immediately with passing of the provocation. Certain behavioral patterns were not attributed to frontal lobe dysfunction but were based upon old personality characteristics carried to extremes.

A rather simple formulation of the defect was reached. The patient's associative range was severely limited, restricting him to the use of verbal expressions and other reactions immediately stimulated at a given moment, and enormously reducing the associative repercussions of each new incident to an extent practically prohibitive of any learning and producing a fragmentation of his former acquisitions, with enough preservation of well-ingrained patterns to provide a facade of social personality. As a result of the limitation of associative range, or perhaps as a basis for it, the capacity for symbolic activity was shattered. Words no longer acted as links between related experiences: they no longer served as pivotal points through which a multitude of associations could interrelate. In this manner the defects due to prefrontal lesions are related to aphasic disorders. A paralyzing limitation of symbolic functions exists rather than an interruption or impediment at a more primary level.

Various divergent theories of prefrontal lobe dysfunction are critically reviewed and an attempted resolution offered through the concept of limitations of associative range and the concomitant disruption of symbolic functioning. 32 references.—AUTHOR'S ABSTRACT.

Emotionality and Perpetual Defense. ELLIOTT MCGINNIS, UNIVERSITY OF ALABAMA, BIRMINGHAM, ALA. *Psychol. Rev.* 56:244-51, Sept. 1949.

Studies of the relationship between emotion and perception were made in 8 men and 8 women psychology students, the galvanic skin response being selected as an index of emotionality in response to affectively-charged verbal symbols. Eleven neutral and seven critical or emotionally-toned words were devised and exposed by a Gerbrand's Mirror Tachistoscope, a controlled exposure interval

variation of .01 second or more being allowed. Each subject was seated before the viewing mirror of the tachistoscope and electrodes connected in series with a potentiometric circuit for measuring galvanic skin response strapped to each palm. Use of a 32 cm. scale microammeter made it possible to accurately read current changes of 1 microampere. Thresholds were determined for 4 trial words by exposing the stimulus word once at .01 second, once at .02 second and so on until correctly reported by the subject.

Analyses were based upon microammeter readings recorded on exposure trials up to that one in which recognition finally occurred. Assuming the galvanic skin response to be an index of emotionality, the reactivity to verbal symbols could be measured during the time preceding accurate recognition of the symbol. Significantly greater galvanic skin responses occurred during the pre-recognition presentation of the critical words than before recognition of the neutral words. The findings concerning observer's thresholds for neutral and emotionally-toned words showed significantly higher recognition thresholds for the latter. Pre-recognition hypotheses of the charged words indicated resistance to recognition. Both male and female groups showed the same emotionality during the pre-recognition period.

Results of these studies indicate that perceptual defense is apparently based upon conditioned avoidance of unpleasant verbal symbols. Increased individual emotionality before recognition shows that the individual actually discriminates the stimulus before fully perceiving it. The greatest galvanic skin response of the observers followed final exposure of the critical words. The stimulus word is therefore a clue to deeply imbedded anxiety shown in the autonomic reactivity measured by the galvanic skin response. Avoidance of further anxiety is simultaneously aroused in the form of perceptual defense against recognition of the stimulus object. 12 references. 3 tables.

TREATMENT

a. GENERAL PSYCHIATRIC THERAPY

The Use of Therapeutic Activities in Psychiatry. DOUGLAS NOBLE, M.D., WASHINGTON, D. C. *Am. J. Occup. Therapy* 3:62-8, 96, March-April 1949.

This paper is concerned with the "modus operandi" of therapeutic activities both in regard to the interpersonal influences involved and to the specific effects of the activities employed. Emphasis is laid upon the need for close coordination of activity therapy with individual and group psychotherapy. The training of the therapist must keep pace with the growing application of dynamic principles to psychiatric work and there is need for careful study of means whereby therapists can become more aware of their own motivations and consequently of the dynamics of their relations with patients.

Clinical examples from hospital and private practice are used to illustrate the interaction of therapeutic activities with intensive psychotherapy. Reference

is made to experiments with activities which are designed to relieve specific tensions and personal conflicts. Certain special problems which may involve the therapist are: 1) the re-educational therapy of adolescent patients; 2) the patient's self-chosen activities; 3) spontaneous group activities and ward self-government. 5 references.—AUTHOR'S ABSTRACT.

Diagnosis and Rational Psychotherapy. C. H. PATTERSON, VETERANS ADMINISTRATION, MINNEAPOLIS, MINN. *J. Nerv. & Ment. Dis.* 109:440-50, May 1949.

Differential diagnosis has little connection with the choice of a technic in psychotherapy because the technic used depends more upon the training preference and skill of the therapist than upon the diagnosis. Severity of the condition may be considered in choosing a supportive or uncovering technic but otherwise there is little rational connection between special conditions and technics. It has been suggested that rational psychotherapy should be based upon an understanding of the basic, common element of maladjustment and therapeutic principles and technics developed which would be effective in reaching and correcting this condition.

As maladjusted and normal or adjusted behavior must be understood and interpreted in the same frame of reference, common factors to maladjustment must be derived from an understanding of behavior in general. A theory of behavior and its maladjustments providing an etiologic explanation of the latter in terms of common elements was developed and certain general or basic principles of psychotherapy derived therefrom.

Planned treatment was emphasized in an effort to make psychotherapy rational, an analogy between internal medicine and mental maladjustment being drawn. This, however, did not mean that psychotherapy should be inflexible. A flexible technic includes changing the frequency of interviews and use of interrupted treatment as well as directive questioning and probing. Manipulating frequency of interviews places a responsibility upon the therapist which should possibly be assumed by the patient. It is not believed that a complete transference neurosis is unavoidable. It is largely a creation of the therapist and may be utilized as a technic to be manipulated. The emotional readjustment which may result from insight is the therapeutic objective and not insight for its own sake. The relationship between insight and emotional readjustment is frequently the opposite of what might be expected in a standard psychoanalysis. Considerable preliminary emotional readjustment may often be necessary before insight is possible. True insight is impossible in maladjustment rather than maladjustment being caused by a lack of insight. Interpretation should not be used to force insight, the patient being permitted to reach his own interpretation which will be real and valid even though not in psychoanalytical phraseology.

There has been considerable discussion concerning the place of learning in therapy but learning has not yet been exactly defined. Learning has been interrupted in maladjustment and treatment seeks to facilitate learning by providing an appropriate atmosphere or environment. 11 references.

On the Treatment of Hypochondriasis. JOHN M. LYON, DENVER, COLO. *Am. Pract.* 111:545-49, May 1949.

Treatment of the average patient with hypochondriasis is admittedly a difficult task. The first step in devising a treatment is an attempt to understand etiologic factors. Hypochondriasis seems to be a psychologic reaction that occurs when a person is unable to meet the competitiveness of every day life, is loaded with more responsibilities than he can carry, or is faced with failure in a situation where he feels he should succeed. It is impossible for most people to admit that "they can't take it," so an excuse must be found. Failure to achieve success and happiness can be excused if a person is sick and this is the psychologic trap. The person first becomes convinced that he is sick. He believes in his own illness and therefore can never be accused of malingering. Those who fall into this trap are the individuals who have a lifelong habit of meeting stress situations with body reactions and those who have a timely illness or accident from which they never recover. The unconscious formula for the hypochondriac patient might be stated as: "I am actually a capable person, but I am sick and therefore must be excused."

The need for illness is imperative and is the only solution the person has for his problems, but lacking insight into the cause of his illness he naturally seeks medical attention. Also, it is of no purpose to be sick if others do not acknowledge the illness. The hypochondriac patient, then, must have the attention of a physician. It develops therefore that such a person goes to a doctor only to validate an illness and not to be cured. Now it becomes understandable why the hypochondriac patient objects and gets no relief when a doctor finds nothing wrong. An organic diagnosis and treatment, however, will not change the picture for the patient cannot get well and simply uses the diagnosis as another page in his ever-growing medical history.

Treatment is based on the idea that the hypochondriac patient simply wants a doctor to accept his symptoms and not to challenge them, explain them, or cure them. This can be done by not making a diagnosis or prognosis and by agreeing that an illness of some type does exist, which it does. Treatment is continued by prescribing bland medications that are new to the patient and setting up return appointments at two to six-week intervals. The patient is allowed twenty to thirty minutes during which time he talks all he pleases about any topic he chooses. The doctor never inquires about a return to work and never attempts to put the symptoms on an emotional basis. As time progresses and the patient feels that the doctor accepts the illness and as his sense of security increases, the insistence upon illness decreases. There usually comes a time when the patient talks of personal affairs to the exclusion of symptomatology. Insight is rarely developed but a large percent can, and do, return to a useful existence and practically drop their insistence upon disease. The success of such a plan hinges upon: 1) the physician's ability to admit that the hypochondriac individual is sick; 2) the ability to listen without irritable or pointed comment, and 3) the ability to refrain from making a diagnosis and prognosis.—AUTHOR'S ABSTRACT.

b. DRUG THERAPIES

Evaluation of Progress in Established Physiochemical Treatments in Neuropsychiatry. II. The Use of Insulin in Mental Illness. A. E. BENNETT, BERKELEY, CALIF. Dis. Nerv. System 10:163-69, June 1949.

Insulin therapy, developed by Sakel about twenty-five years ago, requires hospital care and great professional skill and nursing; even so, complications and fatalities occasionally result. Actual experience is needed for proficient treatment, although lectures and reading help.

The author reviews results of insulin treatment in reports by Solomon, Tennent, Gralnick, Penrose and a commission of New York state hospitals. These percentages show that the treatment, although by no means specific, warrants use of insulin until better methods are found, if only to reduce periods of hospitalization. Stockings' high percentage of recoveries probably indicates a large number of acute cases with affective admixtures and the benefit of early military treatment. The author, an early user of subshock insulin to increase weight in undernourished patients, reviews its subsequent use in civil and military patients and recommends it particularly in anxiety states and conversion hysterias as well as in depressions. Subshock insulin may be dangerous, especially with alcoholic patients. Both insulin and subshock insulin therapy require a full psychiatric regimen, along with psychotherapy.

In many patients resistant to therapy, insulin and convulsive shock are variously combined with success. Reports by four investigators are reviewed.

Insulin treatment is superior to electroshock in schizophrenia of recent onset without predominant affective reactions and in acute paranoid types. A combined treatment of 6 to 12 electroshocks and 20 insulin comas benefits many cases. Sustained results in less than half these cases and complete recoveries in only half of these nevertheless justify the treatment, in shortened hospitalization. As a last resort prefrontal lobotomy should be considered in certain recurrent cases.—

AUTHOR'S ABSTRACT.

Suggestion for Treatment of Sequelae of Cerebral Vascular Lesions with Intracarotid Injections (*Essai de traitement de séquelles de lésions cérébrales vasculaires par injections intracarotidiennes*). E. WÖRINGER AND P. GLOOR. Schweiz. med. Wschr. 79:1213-14, Dec. 17, 1949.

The time seems imminent when the dogma of the irreversibility of cerebral vascular lesions will have to be revised. Rupture of a healthy cerebral artery would require a pressure of 150 cm. Hg. Most ruptures occur in arteries already altered by disease such as arteriosclerosis or arteriitis, which lead to constriction of the lumen and cause circulatory disturbances through the whole surrounding region; a progressive anoxemia affecting the vessel wall and causing dislocation due to edema develops. The scene is thus prepared for the acute accident. A functional deficiency of the entire region, which persists after the patient has recovered from the acute attack, results. This persisting functional deficiency is not irreversible; 4 cases are described in detail to illustrate this fact. The is-

chemic condition can be remedied and the specific function of the damaged centers can be restored. In all of these cases intracarotid injection of umbradil (amine salt of 3,5-di-iodo-4-pyridone-N-acetic acid) was used for arteriography indicated in the presence of various degrees of functional deficiency following cerebral vascular lesions. Return of speech, improvement in gait and remarkable general improvement resulted and was attributed to the vascular congestion produced by the umbradil. The cells in the poorly supplied region were thus supplied with oxygen and nutrition. It is suggested that possibly a reflex is released at the carotid bifurcation. These results are reported in the hope of stimulating new attempts to reach the centers affected in cerebral vascular lesions.

c. PSYCHOTHERAPY

Spontaneous Imagery. A New Psychotherapeutic Approach. AUGUSTA JELLINEK, Ph.D., NEW YORK, N. Y. *Am. J. Psychotherapy* 3:372-91, July 1949.

Just as in dreams, in a waking state pictures symbolizing contents of the subconscious emerge whenever we are willing to suppress conscious control of the rational mind. These pictures and series of living images appear in an apparently spontaneous manner. They are experienced as though they would originate independently and as though we were only spectators of these productions. They borrow some forms of our real experience and memories from reality but often combine them in an irrational way. Often they carry a strong emotional potential. This function we call "Spontaneous Imagery." Such phenomena have been observed by Johannes Mueller, Goethe, V. Urbantschitsch and other investigators and poets.

The contents of the images are individually conditioned. They may consist only of one picture or a short series of images connected with a given theme or situation and starting from this. Or when free flow is allowed, they may last an hour or more and either consist of connected stories which often resemble fairy tales or of short episodes which do not seem to be connected with each other. Mythical elements appearing in many imageries seem to be common to all. Among the recurring symbols is a voyage over seas, walking through dark and dangerous tunnels, emerging into the light, ascending steep mountains with difficulties and such figures as an old, wise master, a commander, a knight, a female figure similar to a fairy or to an angel, a veiled woman whose face is invisible, etc.

Everyone can be induced to free imagery if he assumes a state of muscular relaxation, closes his eyes and focuses them toward a point in the median plane of the head. Imagery is always present but we become aware of it only if we allow ourselves to look at it and exclude other contents of the mind. The situation appears to the subject very similar to the state immediately before falling asleep.

In therapy, imagery induces catharsis, release and material for suggestion. Imagery emerging in association with a theme condenses a state of mind such as confidence and contentment, and excludes in that moment anxiety, etc. The patient is then instructed to recall such an image consciously in order to reproduce the wanted emotion during a critical situation. These suggestions are very

effective as the material is taken from the patient's own personality. This method of therapy is especially effective with stutterers. It was also used in the treatment of vocal disorders with good effect. Continued free imageries over a period of several weeks produce connected stories in which the subject solves personal problems in a symbolic form progressing more and more toward a state of balance. The subjective effect is exhilarating and there is little resistance against such productions. Psychotherapy through imagery may be used as an independent method but such material might also be useful in analysis. 10 references.—AUTHOR'S ABSTRACT.

Psychotherapy as a Problem in Learning Theory. EDWARD JOSEPH SHOEN, JR., IOWA CITY, IOWA. *Psychol. Bull.* 46:366-92, Sept. 1949.

This paper represents a tentative effort to construct a useful conceptualization of psychotherapy in terms of modern learning theory on the ground that unless the process of learning in therapy can be demonstrated, it is not legitimate to infer that the modifications of behavior that may occur during or following therapy are necessarily outcomes of therapy.

All schools of psychotherapy can with some justice claim successes. If this is granted and if it is true that successes are no proof of therapeutic theory, then it would seem to follow that an understanding of the therapeutic process would be furthered by giving more attention to the conditions under which the patient's learning of new modes of reaction takes place within clinical settings of varying ideological hues. Clinical cases (excluding psychotics, psychopaths, and organics) tend to present a similar problem in that one of their primary motivations is anxiety and much of their symptomatic behavior is maintained on the basis of anxiety reduction. This statement, made in terms of Hull's reinforcement theory of learning, is quite in keeping with Freud's idea of the interchangeability of anxiety and symptom, that through the formation of symptoms the patient protects himself from anxiety attacks. On the basis of this notion it is possible to define a neurosis or a maladjustment in terms of behavior which serves to reduce anxiety directly without altering the conditions which produce the anxiety. Thus, non-integrative behavior is at the same time self-defeating, in that such behavior leads inevitably to further punishment, usually in the form of social disarticulation, failure in work, or loss of self-esteem; and it is self-perpetuating because of the immediate reinforcement derived from anxiety reduction. In spite of its non-integrative nature, overt neurotic behavior acquires remarkable persistence through anxiety-avoidance. This persistence is probably the factor most responsible for the failure and consequent elimination of clinical techniques aimed solely at the elimination of symptoms. Such a goal, in effect, defined psychotherapy as a process of robbing the patient of his defenses against anxiety without alleviating the unbearable state of dread. Most modern psychotherapies, on the other hand, aim at the modification of the emotional and motivational determinants of neurotic behavior. From the standpoint of technic, there are two main aspects of the therapeutic process, common to all schools of psychotherapy. One is the unique relationship that develops between therapist and

patient; the other is the conversational content, what they talk about during their sessions together. So far as the content factor is concerned, most clinicians are primarily interested in having their patients verbalize quite fully: 1) the anxieties from which they suffer and against which they so non-integratively defend themselves, and 2) the conditions, current and historical, which engender anxiety. The relationship aspect of psychotherapy seems to be characterized by warmth, permissiveness, and complete freedom from moralistic and judgmental attitudes on the part of the therapist. Far from being a coldly objective consideration of the patient's troubles, therapy necessarily involves a highly personal, although clearly and definitely limited, form of interaction.

It is proposed that the fundamental event in psychotherapy is a counter-conditioning of anxiety. This hypothesis involves the following set of notions: 1) the conversational content aspect of psychotherapy consists in the symbolic reinstatement of the stimuli which produce and have produced the patient's anxiety. Through his words to the therapist, the patient, on a symbolic level, again "lives through" the stimulus situations which have been painful to him. This constitutes the lifting of repression and proceeds essentially by the therapist's reinforcing, by his acceptance and his sympathetic participation, the patient's self-revelatory behavior. At the same time, the discussion of the patient's anxiety is being carried on within the context of the unique patient-therapist relationship. This is conceived as an unconditioned stimulus for feelings of pleasure, acceptance, security—non-anxious affective reactions. The therapeutic process consists by hypothesis in the establishment of a bond between the symbolically reproduced stimuli which evoke and have evoked anxiety—chiefly the cues associated with the incipient movements toward performing some repressed activity—and the non-anxiety, or comfort and confidence, reactions made to the therapeutic relationship. 66 references.—AUTHOR'S ABSTRACT.

Vocational Counseling in the Rehabilitation of Disturbed and Delinquent Boys. KURT FANTL, LOS ANGELES PUBLIC HEALTH DEPARTMENT, LEONARD SMALL AND RICHARD ROBINSON, VOCATIONAL ADVISORY SERVICE, NEW YORK, N. Y. *Ment. Hyg.* 33:615-28, Oct. 1949.

A progress report is presented of a vocational-counseling experiment to determine what effective aid could be given disturbed and delinquent boys during their stay in a psychiatric observation ward that would facilitate adjustment and prevent further delinquencies. These boys were referred for suspected mental illness. Their offenses included truancy, stealing, running away from home, arson, sex offenses, assault, and occasionally murder. Before much treatment could be given, it was necessary to overcome the boys' hostile and defensive attitudes and help them to regain their self-esteem.

Vocational counseling endeavors to assist an individual in evaluating himself, his skills, interests, ambitions, likes and dislikes, and compares these with various job demands and fields of work. It is based upon interviews, job information, and aptitude testing. The interview establishes a relationship be-

tween the counselor and client and provides opportunity to evaluate the client. Job information includes information on job requirements and training, union relationships, job-procurement procedures, availability, etc. Better results are obtained in aptitude testing by actual observation of a person at work than by test scores.

Conclusions after one year of combined psychiatric and counseling efforts were that vocational counseling was of material assistance in gaining the confidence of many boys, was effective supporting treatment and made it possible to initiate psychotherapy. Best results were obtained with neurotic boys. Less effective and more variable results were obtained with cases diagnosed as schizophrenia. Certain cases of mental illness resembling schizophrenia occur among adolescents. They seem more amenable to psychotherapy, however, and their improvement must be safeguarded by continued work. The psychopathic personality continued the most difficult to treat and required exceptionally large amounts of work. Vocational counseling has not interfered with psychotherapy but has always been helpful and sometimes the only way by which relationship could be maintained with the boy. Community education toward understanding the graduated differences between normality and abnormality is necessary to the establishment of a realistic rehabilitation program.

d. THE "SHOCK" THERAPIES

Evaluation of Progress in Established Physiochemical Treatments in Neuropsychiatry. III. The Use of Electroshock in the Total Psychiatric Treatment Program. A. E. BENNETT, BERKELEY, CALIF. *Dis. Nerv. System* 10:195-205, July 1949.

In schizophrenia convulsive shock may have value as a symptomatic treatment; in schizophrenic patients with affective admixtures it is often therapeutic. The great value of electroshock is in the affective disorders. Results since the author's initial report in 1938 have been surprisingly uniform: 80 to 90% of full or social recoveries in all types of depressive reactions, with best results in involutional or presenile depressions. Manic depressives in the manic phase also respond well but require more treatments and closer observation, to prevent possible relapses. Fabing's combination of intravenous coramine with ECT promises good results, with fewer treatments. Convulsive therapy is also indicated in a very few severe resistant psychoneuroses.

Electroshock has certain risks. It has aggravated pulmonary disease, chronic bronchiectasis and decompensated rheumatic heart to the point of shortening life. If curare-electroshock is used, active pulmonary or systemic infections and cardiac decompensation are the only definite contraindications. Myasthenia gravis contraindicates the use of curare, to small doses of which the myasthenic is sensitive.

A recent report of 230 patients receiving electroshock without mechanical restraints or previous paralyzant showed that 53, almost one-fourth, sustained fractures of one or more bones. Traumatic complications can be eliminated

completely by preliminary curarization. By correct technic a dose estimated to the patient's body weight is injected intravenously within a minute. Two minutes later, at the peak of muscular relaxation, the electric current is applied. Too large a dose or speedy administration of curare may cause cyanosis. Prostigmine is kept at hand to clear up the occasional prolonged curarization. Curare has no toxic or side reactions, and in skilled hands the technic is without danger.

The promiscuous use of ECT without other adequate psychiatric therapies is inexcusable. Its use with ambulatory patients in office or outpatient clinic, except under conditions that parallel hospital care, may cause serious accidents and render the physician liable to claims for malpractice. Such treatment ignores the controlled hospitalization necessary for sustained results. The number of treatments should be the strict minimum needed for lasting results. Individual spacing of treatments, the proper push, adjunctive therapies, good nursing management and re-educative psychotherapy are all necessary. Experience has shown that 8 treatments are needed (sometimes 10 to 12) to clear a depression, occasionally 2 to 4 more to prevent relapses. As a rule, older patients require fewer treatments to obtain mental confusion. In manic states 12 are given, increased to 20 if relapse is apparent after a two-weeks' rest period. In schizophrenia with affective components the patient must improve within 6 treatments and improve markedly by 12, or insulin coma is used. Individual prescription is important in all treatments.

Nursing management, nutritional care and superficial psychotherapy are important during treatment. At the end of ECT treatments patients with psychogenic conflicts have daily interviews and prescribed reading, with emphasis upon the patient's understanding his problem and what he can do about readjustments. Upon discharge, usually two weeks after cessation of ECT, patients are followed for a month or more, as required. Experience shows that most relapses stem from too early dismissal. In the experience of some therapists, single-spaced treatments after dismissal have proved prophylactic. 41 references.—AUTHOR'S ABSTRACT.

Psychiatric Shock Treatments in Pregnancy (*Traitements psychiatrique de choc et grossesse*). MAURICE POROT, ALGIERS. *Presse méd.* 57:1118-20, Dec. 3, 1949.

This paper reports 3 cases in which electroshock treatment was given during pregnancy on definite psychiatric indications; in one of these cases insulin shock treatment was also used. In one case shock treatment was stopped after the third treatment because of the appearance of blood in the urine, which may have been of uterine origin. There were no symptoms of threatened abortion and the patient was delivered at term; her psychiatric condition at that time was good except for a slight nervous instability. In one other case shock treatment was interrupted for the same reason, but resumed without ill effect on the pregnancy.

From a review of other cases of shock treatment during pregnancy reported in the literature and from his results in the cases reported, the author concludes that pregnancy is not a contraindication to the use of shock therapy when the patient's psychosis is of the type that responds well to this therapy. This is

especially true when the psychosis is such as might endanger the course of pregnancy, or when it causes physical conditions that interfere with normal pregnancy. The treatment should be conducted in consultation with a competent obstetrician. 7 references.

Electroshock Therapy in Neurodermatitis. (Case Report). WALLIS L. CRADDOCK AND G. LLOYD KREBS, FORT LOGAN, COLO. *Dis. Nerv. System* 10:331-33, Nov. 1949.

The case presented is of particular interest inasmuch as a non-psychotic patient with a severe neurodermatitis has not been treated previously with electroconvulsive therapy. A previous article mentioned improvement of dermatitis in psychotic patients given electroconvulsive therapy specifically for the psychosis.

Shock therapy given to the patient, a 24-year-old man, gave far better results in controlling the neurodermatitis than any other therapy. The patient had a severe generalized, recurrent neurodermatitis. Psychometric examinations revealed him to be a sensitive, neurotic individual of bright normal intelligence. Rorschach testing indicated good contact with reality; analysis of the quantitative and qualitative aspects of the records suggested phobic personality with immature obsessive phantasy formation. There was recurrence of the dermatitis following the first series of shock treatment, when the patient returned to his family conflicts. Again electroconvulsive measures were used after the acute dermatitis failed to respond to usual measures, including heavy sedation. Psychotherapeutic measures have since prevented recurrence of the severe dermatitis. 1 reference.—AUTHOR'S ABSTRACT.

Brief Stimulus Electric Shock Therapy. DOUGLAS GOLDMAN, CINCINNATI, OHIO. *J. Nerv. & Ment. Dis.* 110:36-45, July 1949.

A few years after the introduction of electric shock treatments with the classic type of current, experimentation began with modifications of the current so that some of the disadvantages of the raw alternating current could be obviated in administering electroconvulsive therapy. In spite of the longer duration of stimulus, patients treated with the modified current suffered less confusion from the treatment than did those treated with the regular alternating current.

The chief differences between the brief stimulus therapy machine and the ordinary electric shock treatment machine are in the control of the number of cycles per second, that is 60 to 120, and in the control of the duration of each individual stimulus. Placement of electrodes has been found to be a critical matter if minimum levels of current are to be used. It has been found that the most favorable location of the electrodes is vertical-temporal, that is, with one electrode on the vertex of the skull and the other on the temporal area, somewhat anterior to the ear. The usefulness of the variable settings of the machine in treatment is most appreciated in the management of resistant patients when symptoms which are troublesome fail to respond to treatment given in the routine manner. In some patients a deeper effect on the level of consciousness is desired,

particularly where there is severe anxiety with obsessive components. For the simple production of seizure, the chief variables which determine the production of seizure are the peak current and the time of stimulation. With the BST treatment the latent period between the passage of the current and the initiation of the seizure is practically never more than one second. It can, therefore, be stated that if the seizure does not start right away, the patient will not have a seizure and, therefore, should be given another stimulus.

The effect on consciousness of the seizure produced by BST current is remarkably less than that produced by the classic sine wave current. Patients are usually able to respond within five minutes, often within less than one minute with practically clear minds. A mild degree of confusion is sometimes produced in patients who receive many treatments, particularly older people, but the degree of confusion reached is never equal to that produced by the sine wave currents. An occasional serious disadvantage in the use of BST current, particularly since the introduction of the slow start for fracture prevention, is development of fear of the treatment which, in a few instances, has been extreme. This, however, is readily controlled, even after it has begun, by the use of pentothal before production of the seizure, so that the initial current is not felt even during the brief period of 0.5 to one second during which the patient loses consciousness at the beginning of the treatment. We have had no patient abandon the treatment after the use of pentothal in spite of the considerable degree of anxiety which had developed in 3 or 4 previously. To date, more than 125 patients have been treated with BST current. For various reasons not all patients have completed the treatment. Some patients were not those in whom recovery or improvement could be anticipated, but were simply State hospital patients in whom palliative measures were being carried out. There is a sufficient group, however, to be of comparative significance to indicate the value of this modification of treatment in recent psychoses and psychoses of longer standing. The results compare favorably with the effect of the classic electric shock treatment. 5 references. 4 figures. 4 tables.—AUTHOR'S ABSTRACT.

The Selective Use of Electroconvulsive Therapy in Manic Patients.

BURTRUM C. SCHIELE AND ROBERT A. SCHNEIDER, MINNEAPOLIS, MINN. *Dis. Nerv. System* 10:291-97, Oct. 1949.

"Is electroconvulsive therapy effective in the treatment of manic patients?" Opinions expressed in the literature vary. Some believe that electroshock is as effective as it is in the treatment of depressions; others claim poor results. This difference of opinion is largely resolved if the question is posed: "In which manic patients is electroshock most effective?" The indications are comparable to those used for depressed patients of the manic-depressive type (not the involutional depressions). The course is shortened in favorable cases; i. e., cases showing acuteness of onset and favorable personality features. Such symptoms as acute excitement, assaultiveness and exhaustion can be controlled or prevented. The authors used electroshock therapy twice as often in delirious manics as in hypo-

manics. Less satisfactory or lasting results are likely in cases which are of a circular manic-depressive type or where there are strong psychopathic or schizophrenic admixtures. A history of previous failures to improve under electric shock therapy is also an unfavorable sign, as would be expected. The authors' experience coincides with a large number of others in that manic symptoms require more frequent treatment and a greater total number of treatments than do depressive symptoms. The danger of relapse is greater and the patients need to be followed longer and more closely because of this. Case summaries were used to illustrate the role of electroconvulsive treatment in the total treatment program, which includes group activity, psychotherapy and counseling of the patient's family. 29 references. 1 table.—AUTHOR'S ABSTRACT.

On Prefrontal Leucotomy. B. HORANYI, BUDAPEST. *Mshr. Psychiat.* 118:105-18, Aug. 1949.

A series of 42 cases is reported, and the literature reviewed. The three definite indications for leucotomy are at present: 1) intractable pain, particularly in incurable disease; 2) high emotional tension rendering life unbearable to self or others and resistant to other forms of treatment; and 3) changes in primary activity increased as in catatonic agitation or decreased as in catatonic and depressive states, when other types of treatment fail. 38 references.

An Evaluation of Lobotomy and Its Potentialities for Future Research in Psychiatry and the Basic Sciences. LAWRENCE C. KOLB, M.D., ROCHESTER, MINN. *J. Nerv. & Ment. Dis.* 110:112-48, Aug. 1949.

This review article presents a summary of new data derived from investigation of lobotomized patients, indicates in what areas further research is needed and describes the manner in which recent studies on lobotomy differ from earlier investigations upon patients with frontal lobe defects due to other causes. The subject is considered in sections concerned respectively with historical perspective, surgical technics, neurophysiologic, morphologic and psychologic investigations and therapeutic evaluations. 158 references.—AUTHOR'S ABSTRACT.

Adjustment Levels in Hospitalized Schizophrenic Patients Following Prefrontal Lobotomy. GEORGE D. WEICKHARDT AND ADDISON M. DUVAL, WASHINGTON, D. C. *Dis. Nerv. System* 10:306-09, Oct. 1949.

Forty-five patients were studied as to socio-economic adjustment after standard or radical prefrontal lobotomy. All were diagnosed as schizophrenia by the hospital staff. At the time of operation all patients had been ill for two or more years. Patients were selected for operation only after they had failed to respond favorably to more conservative, indicated and available treatment. In general the patients presented problems of assaultive behavior or suicidal tendencies. Patients were followed from six months to six years after operation.

Of 42 living patients, 9 remain problems from the standpoint of nursing care and supervision because of untidiness, assaultive behavior or suicidal ten-

dencies. Most of these patients dress with urging and feed themselves but contribute nothing to the welfare of others. None is bedridden or unable to walk. Twenty-one patients are in the passive-dependent group. These patients remain entirely dependent on the hospital and contribute nothing to the welfare of others but are not problems from the standpoint of untidiness, assaultive behavior or suicide. Eight patients work at simple tasks under supervision and are distinctly useful hospital citizens. Many are permitted to visit with relatives but require nominal supervision at home. None of these is steadily employed. Four patients are regularly employed outside the hospital or have resumed the responsibilities of housekeeping. 5 references. 8 tables.—AUTHOR'S ABSTRACT.

A Comparison Between Various Forms of Psychosurgery. FRED A. METTLER, DEPARTMENT OF MENTAL HYGIENE OF THE STATE OF NEW YORK, NEW YORK, N. Y. *New York State J. Med.* 49:2283-86, Oct. 1, 1949.

Neither one form of psychosurgery nor any special operation is applicable to all psychotic individuals or to all persons having the same psychosis or symptoms. Improvement following psychosurgery is often questioned on the grounds that the patient would perhaps have done as well or better without operation. Recent results indicate that many chronic institutionalized patients are benefited by lobotomy. Better results have been obtained from transorbital lobotomy in early than late cases. Topectomy seems beneficial but little is known concerning possible results of other forms of psychosurgery in chronic cases. Better results seem to be obtained in patients who have responded favorably to shock therapy. Little benefit from surgery can be expected in patients who have few lucid intervals or are extensively deteriorated. There is little evidence to indicate results in individual cases but it is felt that psychosurgery benefits patients showing greatest concern with themselves more than those who over-respond to external stimulation.

The chief differences between the various forms of psychosurgery have thus far been variations in number and extent of undesirable effects. The highest mortality and incidence of undesirable effects, such as incontinence and inertia, occur after complete radical lateral transcranial lobotomy. These undesirable results could be reduced by a less complete and therefore less drastic operation. For example, the mortality and undesirable after-effects are negligible in transorbital lobotomy and topectomy.

The highest incidence of postoperative convulsions occurs after radical lobotomy and the lowest after transorbital lobotomy. Undercutting of the cortex should be safer than either topectomy or thermocoagulation. A high incidence of convulsions follows re-operation in lateral transcranial lobotomy. Results indicate that almost any psychosurgical operation may give equally good results in cases of intractable pain.

Psychosurgery is unusual in that it is difficult for the general practitioner to obtain a proper consultation. There is considerable difference of opinion between psychiatrists concerning psychosurgery and neurosurgeons who are not trained in psychiatric diagnosis. While transorbital lobotomy is remarkably free of complications, it should not be performed by psychiatrists themselves.

It is felt that neurosurgery should not be performed unless an adequate re-study of the case has been done by a competent psychiatrist; efforts to readjust the patient's home environment have proved unsuccessful, and all less drastic therapy has been exhausted. 1 reference.

Effect of Leucotomy on Creative Ability. W. R. ASHBY AND M. BASSETT. *J. Ment. Sc.* 95:418-30, April 1949.

A study of the effect of leucotomy on creative ability was made in a series of 25 leucotomy patients, of whom 18 were not in institutions and 7 were institutionalized. The interval between the operation and the time of making the tests was from four weeks to seven years, the average being three years. For control the same tests were conducted on 25 normal subjects and on 25 psychotic but non-leucotomized patients. The test used was the Hutton and Bassett test which depends upon the patient's ability to add to a painting imaginative details not present in the example and not suggested by the experimenter. The patient is given a simple colored painting to copy. He is then asked to paint it again, this time as he would like to see it. The difference between the two pictures constitutes a measure of the patient's creative ability. The test is described in detail.

The five basic sets of criteria for judging the result of the test include ability to copy, ability to vary from the example by introduction of new details, painting out of objects or "annihilation," persistence of black or purple in the second painting, and the treatment of the picture as an integrated whole. Scores of patients were analyzed and the results were tabulated. The test is sensitive and specific. It was concluded from this study that creative ability is not markedly affected by prefrontal leucotomy. A total of 3,450 scores was studied.

NEUROLOGY

CLINICAL NEUROLOGY

Diagnostic Techniques for Children with Cerebral Palsy. ERIC DENHOFF, PROVIDENCE, R. I. *Rhode Island M. J.* 32:483-87, 522, Sept. 1949.

The staff of the Meeting Street School, Rhode Island's cerebral palsy centre, utilizing routine histories and examinations of cerebral palsied children, has outlined a plan for earlier diagnosis of that syndrome. A diagnosis of cerebral palsy may be made early in infancy in a majority of patients if the leads obtained from a history are properly evaluated. Maternal past history reveals a disproportionately high incidence of abortion, premature labor and stillbirth, chronic maternal illness prior to pregnancy as well as a large number with illness during pregnancy. Over half of the mothers were reported to have had an obstetric complication such as premature rupture, breech and mid-forceps delivery. The incidence of prematurity (36%) was four times higher than the normal population; 67% of the children had an abnormal sign or symptom noted

at birth or shortly after, primarily the result of bleeding or anoxia. Excessive vomiting, stiffening, crying and cyanosis were outstanding. The developmental history was significant in that in the majority the achievement of mature developmental items was prolonged into the second to sixth year. Criteria utilized during infancy for early diagnosis as well as a scheme for a short neurologic examination to determine the presence of brain injury, is described. 11 references. 5 tables. 2 charts.—AUTHOR'S ABSTRACT.

The Encephalopathy of Hyperinsulinism. ALEXANDER ALTSCHUL, M.D. AND S. K. FINEBERG, M.D., NEW YORK, N. Y. *Am. J. Digest. Dis.* 16:413-17, Nov. 1949.

Clinical manifestations of hyperinsulinism were observed in a 15-year-old colored girl with severe, unstable diabetes mellitus. Coma on varying depth, convulsions, extreme restlessness and mania, altered reflexes and transient hemiparesis were seen during a period lasting more than seventy-two hours. During the last forty-eight hours of this period the blood sugar was maintained at above normal levels. Recovery without apparent residua eventuated. Study of this case illustrated the unreliability of the urinary constituents as the initial diagnostic indicator in coma seen during the course of extremely labile diabetes mellitus. It also demonstrated the ability of globin insulin in large doses to produce cumulative depot effect similar to protamine zinc insulin. In treating hyperinsulinism produced by slow-acting insulins the need for continuous glucose administration is imperative.

Definite injury to the central nervous system has been adequately demonstrated by numerous investigators. They have reported finding gross cerebral edema, histologic changes varying from moderate to severe degeneration of ganglion cells in the cortex and basal ganglia with "Nissl's severe changes" in the neurons and swelling phenomena of the glia and axis cylinders. The actual manner in which hyperinsulinism produces damage to the brain is not known. Many theories have been advanced but the two main theories are that there is a direct, toxic effect of insulin on the neurons causing "intracellular anoxemia" or that hypoglycemia directly, through diminished nutrition of the brain cells, prevents the proper utilization of oxygen. Whichever may be the manner of production, cellular metabolism is seriously disturbed. The term "encephalopathy of hyperinsulinism" is suggested for the variable clinical picture produced by hyperinsulinism which proceeds to the stage of organic neurologic symptoms and psychopathologic manifestations whether or not damage is permanent. 13 references. 1 table.—AUTHOR'S ABSTRACT.

Nerve Root Involvement in Vertebral Arthritis. H. LOVELL HOFFMAN, BATH, ENGLAND. *Proc. Roy. Soc. Med.* 42:575-79, Aug. 1949.

In the elderly patient, osteo-arthritis is a relatively common cause of this syndrome and tends to involve several roots. Over the age of 60, herniation of the nucleus pulposus is rare, but some protrusion of the annulus fibrosus of the degenerate intervertebral disk occurs as part of the pathology of spinal osteo-

arthritis. This and certain other factors tend to narrow the intervertebral foramina. Marked muscle wasting, diminution of reflexes, and sensory loss may occur; fibrillation is rarely seen. Treatment consists of superficial heat and massage with spinal exercises, and gentle neck traction in cervical cases. Cautious manipulation under general anesthesia may be undertaken if the diagnosis is certain.

In ankylosing spondylitis and rheumatoid arthritis, root involvement is much less common. The author describes a case of rheumatoid arthritis of the cervical spine in which vertebral collapse caused cord compression. 9 references. 3 figures.—AUTHOR'S ABSTRACT.

A New Type of Encephalopathy after General Anaesthesia. A. R. HUNTER, ENGLAND. *Lancet* 1:1045-48, June 18, 1949.

Irreparable damage to the brain produced by acute or chronic oxygen deprivation during anesthesia is all too well known. In this series of cases, however, patients lapsed into coma and subsequently died after apparently uneventful anesthesia. Further, several of the patients recovered apparently uneventfully for some hours after the operation, often sufficiently to talk intelligently. Thereafter, they became unconscious and remained so until death some hours or days later. Apart from the light coma, these patients showed no constant neurologic signs. They died of a respiratory infection, as a rule. This syndrome is, of course, quite well known as a complication of operations on pituitary tumors and is associated with a disturbance of the function of the centers in the hypothalamus which control consciousness. Its appearance as a complication of other surgical operations is apparently new. No records of similar cases could be found in the records of Manchester Royal Infirmary nor in those of the Christie Hospital prior to 1946. In the two subsequent years there were 6 cases, all of which are included in the present series. In 7 of the 9 cases which comprise the series, the condition developed as a sequel to the operation of radical mastectomy.

There are several possible causes for the syndrome and they are difficult to sort out since the postmortem appearances are not specific to the condition and indicate only a symmetrical disturbance of cerebral function with diffuse cerebral edema, punctate hemorrhages and softenings. The same appearances are seen in those dying after anoxic accidents, but this cause is unlikely since the anesthetists were all skilled, medically qualified specialists, and since the patients apparently recovered from the damage done them by the anesthetic only to relapse subsequently. The condition which most closely resembles that described in this paper is fat embolism, but at necropsy no fat emboli were found although they were carefully sought in at least 3 of the cases.

A disturbance of this type, again developing after an uneventful anesthetic for radical mastectomy, has recently been described and this patient recovered after the intravenous injection of considerable quantities of 25% albumin solu-

tion (see Seldon, T. S., Falconer, A., Courtin, R., Pino, D. M., Proc. Staff Meet. Mayo Clin. 24:370, 1949).—AUTHOR'S ABSTRACT.

Folic Acid and the Neurologic Manifestations of Pernicious Anemia. WILLIS M. FOWLER AND ATLEE B. HENDRICKS, IOWA CITY, IOWA. Am. Pract. 3:609-13, June 1949.

The authors review briefly the development of folic (pteroylglutamic) acid as an anti-anemic agent, then present in detail 3 cases illustrating different hematologic-neurologic complications produced by the use of folic acid in the treatment of pernicious anemia. The explosive onset and the aggravation of neurologic signs and symptoms are stressed.

The first case was that of a 29-year-old man with pernicious anemia who, after receiving folic acid, 15 mg. orally, daily, developed unusually severe and rapidly progressing subacute combined degeneration within five months after onset of therapy. Folic acid did not maintain an adequate blood level during this time. He made a complete hematologic and neurologic remission with intensive parenteral liver therapy.

In the second case, a 60-year-old woman who had been inadequately treated for many years because of sensitivity to some parenteral liver preparations, was started on folic acid, 20 mg. orally, daily. In four months she had developed a paraplegia and bowel and bladder incontinence. The normal blood picture was maintained, however. On intensive parenteral liver therapy, after desensitization, her neurologic picture improved and she was able to walk, although she had subjective symptoms following one year of therapy.

The third case represented another instance of parenteral liver therapy sensitivity, this being a 47-year-old man who took oral liver extract for years, and finally augmented it with folic acid, 15 mg. orally, daily. Within two months he was bed-fast, and also had bowel and bladder incontinence. The blood picture remained normal. After desensitization and intensive parenteral liver therapy, this patient improved objectively and subjectively and is able to work, although he is still ataxic, the bowel and bladder function being normal.

The exact mode of action of folic acid on the nervous system is not known but it is felt that pteroylglutamic acid competes with and interferes with the naturally occurring glutamic acid in the nerve cell. The authors emphasize that: 1) folic acid does not always produce a hematologic remission; 2) neurologic complications occur rapidly and explosively; 3) neurologic lesions develop quickly in spite of normal blood levels; 4) folic acid plus oral liver does not prevent neurologic complications in all cases. They feel that folic acid has no place in the treatment of pernicious anemia.—AUTHOR'S ABSTRACT.

Organic-Psychic Late Sequelae of Transfusion Accident (*Organisch-psychische Spätschäden nach Transfusionszwischenfall*). H. WALTER BÜEL, ZÜRICH. Schweiz. med. Wschr. 79:1077-79, Nov. 12, 1949.

Psychic or cerebral sequelae of chronic type following transfusion are ex-

tremely rare. A case is reported in a woman of 44 years. At the age of 40 years she was given a blood transfusion for anemia following an extra-uterine pregnancy. An inexperienced nurse determined the blood groups of the patient and of the donor, who was her sister. After 60 cc. of blood had been transfused, the intervention had to be discontinued. Stimulants were administered and after continued treatment in the hospital for another three weeks, the patient was discharged. During the next few years, the patient refused to pay her hospital bill, claiming that she had been permanently injured by the transfusion.

Medicolegal inquiry revealed incompatibility of the donor blood, and psychic examination gave evidence of a chronic organic psychosyndrome (Bleuler) of mild degree. The patient had undergone a definite change in personality, developing a confused state of mind with impaired memory. The latter, together with her state of depression and inefficiency, had finally led her husband to consider a divorce. Her family physician and relatives confirmed this story of a complete change in personality following the transfusion, resulting in a state of pseudodementia and psychoneurosis, like that observed in cases of very mild organic injury. Questioned about the transfusion accident, she remembered only a severe pain in her back. Relatives stated that her face became swollen and that she lost consciousness and then appeared in a dying condition for hours, with salivation, vomiting and chills. Following recovery from this acute stage, the chronic condition described developed. 5 references.

Antalgic Attitudes of L5 and S1 Sciaticas (*Les attitudes antalgique au cours des sciaticques L5 et S1*). S. DE SÈZE, PARIS AND PIERRE MERLE, BOURBON-LANCY. Presse méd. 57:1081, Nov. 26, 1949.

A study of 338 cases is reported, in which a diagnosis of sciatica due to hernia of an intervertebral disk at either the L5 or S1 level was made by physical examination and x-ray with lipiodol, supplemented by operative findings in some cases. In this study special attention was paid to the attitude assumed by the patients to relieve pain. It was found that in the cases in which the disk at the L5 level was involved, the patient was most apt to incline the body toward the uninvolved side; in the cases in which the disk at the S1 level was involved the patient more frequently inclined the body directly forward rather than to the side. This is explained by the fact that the disk between L4 and L5 is movable laterally and the inclination of the body toward the uninvolved side draws the herniated disk away from the affected side, decompressing the hernia. The disk between L5 and S1 does not move laterally to any extent, and therefore this position of the body does not relieve the pressure on the nerve root, although a forward inclination of the body may do so. Frequently, however, patients with this type of sciatica do not find any position effective in relieving pain. 1 figure. 1 table.

Lithium Intoxication Producing Chorea Athetosis with Recovery.
HENRY A. PETERS, MADISON, WIS. Wisconsin M. J. 48:1075-76, Dec. 1949.

In a 57-year-old Wisconsin laborer there developed chorio-athetosis of

Huntington's type after sixteen days' treatment for cardio-renal edema on a salt restriction diet and free use of lithium chloride salt substitute (Westsal) amounting to 20 Gm. of lithium chloride. Recovery from the mental disturbance and chorio-athetosis occurred after five days upon withdrawal of the lithium chloride with return to normal status. Follow-up investigation nine months after discharge revealed no recurrence of neurologic signs and symptoms.

Previous reports on lithium intoxication have emphasized the presence of coarse tremors while this patient showed a true severe chorio-athetoid disturbance. It is assumed that chorio-athetosis, mental confusion, disorientation and prostration may also be characteristic of lithium intoxication. The question of whether other salts of this series could produce such symptoms in similar patients or those who might be hereditarily susceptible was broached. 4 references.—
AUTHOR'S ABSTRACT.

ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM

Studies on the Occipital Lobe. 1. Significance of Small Areas of Preserved Central Vision. GEORGE M. AUSTIN, JR., FREDERICK H. LEWEY AND FRANCIS C. GRANT, HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA. *Arch. Neurol. & Psychiat.* 62:204-21, Aug. 1949.

Studies of 6 cases of occipital lobectomy covering two to fourteen years after operation, using the same conditions and personnel, are presented in detail. Theories on the subject of macular sparing are discussed and previous similar cases reviewed with special reference to the present views on critical localization of the macula. All visual cortex was completely removed or destroyed in all 6 cases, the excision in 4 extending through the posterior horn of the ventricle. Use of a cutting Bovie current, causing some interruption of the blood supply, undoubtedly caused necrosis to extend beyond the actual line of excision in all cases. This may have been responsible for any unexcised remnant of visual cortex.

Studies of the central fields after complete occipital lobectomy indicated an apparent macular sparing resulting from loss of integration between the seeing and blind fields. An eccentric retinal point is therefore used for fixation. The evidence does not, however, appear to support a theory of bilateral macular or foveal representation.

Apparent sparing of central vision remaining in these cases is explained by the situation and extent of the lesion in the optic pathways and a minimal foveal shift with slight accompanying physiologic variation in fixation. The latter is increased by any existing foveal eccentricity. Increased ability to maintain fixation is directly proportional to the postoperative time interval. Splitting or sparing of the macula depends entirely on the extent of involvement of the macular fibers. These are more exposed to pressure or external injury in the optic tract than in the optic radiation. There is therefore more tendency to split

in lesions of the tract. The discussion about splitting or sparing the field of central vision is meaningless physiologically. The question of macular sparing in occipital lobe lesions has become dependent upon extent of the lesion. Formation of a new functional fovea may provide some central vision even though the lesion be large enough to involve the entire striate area. Central vision ranging from 0.25 to 1.5 degrees was preserved in all 6 cases of this series. The same amount of macular sparing, however, was found in 8 control cases with chiasmal lesions. 19 references. 2 tables. 6 figures.

A Neurophysiological Theory of Psychoneurosis. L. J. MEDUNA, CHICAGO, ILL. *J. Nerv. & Ment. Dis.* 110:438-39, Nov. 1949.

According to Meduna, psychoneurosis emerges as a failure of homeostasis when neither the obstruction of nociferous stimuli nor removal of the organism from the nociferous environment is feasible. In this case the original reverberations between the cortex, hypothalamus, thalamus, and cortex—set up by the stimuli—will intensify themselves to such an extent that the structures can no longer carry the load and the load will be discharged into adjoining pathways. The direction of this discharge will be determined by the threshold of stimulation of the adjoining structures. If the threshold of stimulation is lowest in the hypothalamic centers, the discharge will be through the hypothalamus into the autonomic nervous system. If it is lowest in the non-specific motor cortex, the individual will react with non-specific motor symptoms, and if the reverberating circuits should discharge toward the ideomotor field of the frontal and temporal lobes, an ideomotor response will ensue. Therefore, if a treatment can increase the threshold of stimulation of any part of the intrinsic feed-back mechanism of the brain and suspend the reverberation within the system, the psychoneurosis will be modified or alleviated. 1 reference.—AUTHOR'S ABSTRACT.

Coughing and Unconsciousness. The So-Called Laryngeal Vertigo. J. F. PROUDFIT AND LOUIS J. KARNOSH, CLEVELAND CLINIC, CLEVELAND, OHIO. *Cleveland Clin. Quart.* 16:200-04, Oct. 1949.

In laryngeal vertigo, coughing produces unconsciousness with or without convulsions. Sometimes there is only giddiness. The cough is usually preceded by tickling in the throat, is distinctive in character, may be mild, and commonly occurs in middle-aged plethoric, emphysematous, or somewhat hypertensive men. It is frequently associated with laryngitis or bronchitis. The attack is not usually repeated. Three illustrative case histories are presented. The first was a 43-year-old miner who stated that he had blacked out after coughing 8 times in four years. He coughed so violently that his face became cyanotic and he fell unconscious. He had neither convulsions nor incontinence and gave no history of tinnitus, vertigo or deafness. Physical examination was essentially negative except for persistent sibilant ronchi in the right lower lobe. The second case was a 57-year-old man who became unconscious 3 times in one year after coughing. He stated that he had no warning but that the cough had a peculiar quality and occurred in a severe paroxysm which shut off his wind. He then became uncon-

scious and remained so for several minutes but had no convulsions. He became slightly dizzy and confused after recovering consciousness. He coughed a great deal in the mornings without becoming dizzy or unconscious, even though he sometimes coughed so much that he vomited mucus. Physical examination was essentially normal. The third case was a 48-year-old man who gave a history of cough for twelve years. He had had asthmatic attacks for six years. Cough and asthma became worse during the two years before admission. Blackouts had followed severe coughing paroxysms with increasing frequency for the previous year. The attacks varied from 3 or 4 daily to 1 or 2 weekly. There were neither convulsions nor incontinence. Physical examination was essentially normal except for an occasional expiratory wheeze.

The family and previous history of all 3 cases were negative for epilepsy but each patient was obese. Violent coughing precipitated all the attacks of unconsciousness. Chest roentgenograms were normal in all 3 cases. An electroencephalogram in 2 cases was normal and unilateral carotid sinus pressure produced no symptoms in 2 cases. Simultaneous bilateral carotid sinus pressure caused unconsciousness and generalized convulsive movements in the third case. The significance of symptoms after bilateral carotid sinus pressure is uncertain.

The etiologic factors of laryngeal vertigo are unknown but apparently complex, and the treatment is entirely symptomatic. Phenobarbital is probably helpful but only as a sedative. 11 references.

The Tonic Pupil. G. S. GRAVESON, MANCHESTER, ENGLAND. *J. Neurol., Neurosurg. & Psychiat.* 12:219-30, Aug. 1949.

The author has investigated a series of 15 patients (12 females, 3 males) ranging in age from 12 to 55 years, with the object of showing what are the essential clinical features of the tonic pupil, and of attempting to discover the anatomic site of the underlying lesion. In 8 patients the disorder was unilateral, in 7 bilateral. No pathologic cause was found for the disturbance in 14 patients; 1 was the direct sequel of a closed head injury. In this case there were no other ocular symptoms.

The tonic pupil may present in one of two forms: 1) the "fixed" type, in which the affected unilateral pupil is enlarged, irregular or unresponsive to light and convergence. This type may be distinguished from a complete internal ophthalmoplegia by a) the presence of tonic accommodation and b) contraction of the pupil under acetyl B methyl choline; 2) the "ordinary" type. Here the disturbance may be unilateral or bilateral. The pupil is irregular in shape and/or position and may be of any size, although usually it is larger than normal. Its most characteristic reaction is a slowness of dilatation after convergence. This may be the only change in the early stages. Later, contraction on convergence becomes slow and may be delayed in onset and excessive in amount. The light reflex may be normal at first, but later is either completely absent or may show a slowness of contraction and relaxation when intense illumination is applied. Tonic accommodation is a much more frequent finding in these cases than has hitherto been recognized. Various combinations of reaction to light and con-

vergence may, therefore, be seen, so much so that the author feels that Adie's classification into "typical" and "atypical" phases is misleading. The only typical features in this group are, first, the irregularity of the pupil and, secondly, the slowness of relaxation after convergence. Contraction under acetyl B methyl choline was found in 50% of cases of this type.

A brief review is given of the several theories regarding the site of origin of the tonic pupil. The author concludes that the disturbance is due to both anatomical and biochemical changes. Evidence is adduced that the paresis of pupillary contraction is due to a lesion in the ciliary ganglion or short ciliary nerves. The slowness of relaxation after contraction is thought to be due possibly to a delay in the destruction of acetyl choline at the myoneural junction in the sphincter muscle. 39 references. 2 tables.—AUTHOR'S ABSTRACT.

Muscle Action Potentials in Human Poliomyelitis Before and After Closed Manual Neurotomy. ROBERT HODES, TULANE UNIVERSITY SCHOOL OF MEDICINE. *J. Applied Physiol.* 1:790-801, May 1949.

Maximal action potentials elicited by percutaneous nerve stimulation were obtained from the muscles of the extremities of 20 patients in the chronic stage of poliomyelitis. Changes from control action potential amplitude were followed 0.9 to 17.8 months after treatment by the "closed manual neurotomy" method of Billig. No electrical activity was ever recorded after neurotomy from those muscles which yielded no action potentials before treatment. Changes in action potential size of partially innervated muscles following manual neurotomy were not always limited to those muscles intentionally treated.

Partially innervated skeletal muscles showed a reduction in amplitude of electromyogram up to four months postoperatively, gave slightly greater than the control values from four to eight months after treatment, and on the average yielded action potentials 21.5% larger than the controls from eight months onward. The increase in action potential size, eight or more months after operation, was statistically significant when compared with the untreated controls. The neuromuscular block which is often observed during repeated motor activity before treatment was either reduced or abolished in some patients after operation. 7 references. 6 figures.—AUTHOR'S ABSTRACT.

Tension on the Suture Line in Peripheral Nerve Surgery. EUGENE E. CLIFFTON, M.D., NEW HAVEN, CONN. *Surgery* 26:756-69, Nov. 1949.

A study of 303 cases of nerve laceration in which neurotomy was performed was made to determine the effect on the end results of tension applied to the suture line. The cases were divided into two groups: 1) the group which was followed until definitive results were obtained; 2) the group in which a definitive result was not known for any reason at the time of discharge of the patient. A method for suture of nerves under tension using a multiple mattress type suture in the sheath, and a second method using a cuff of nerve sheath are also described. There were no suture line separations observed where either of these methods was used.

Other factors known to affect the final results following repair of nerves were studied and found to be essentially equal in the various tension groups. These included the nerves involved, the type of suture material, the associated damage to other structures, and the condition of the nerve ends as studied by frozen section. The frequency of staged procedures was much greater in the nerves repaired under tension.

Neuroma formation was also recorded at re-operation and the larger neuromata occurred in the nerves repaired with no or minimal tension. The only normal-appearing nerves at re-operation were found in the groups repaired with minimal, moderate and definite tension.

The advantages of repairing nerves with moderate tension after a minimal or moderate dissection of the nerve trunk are discussed. The possibility that slight to moderate tension on the suture line induces the nerve fibers to grow straight down into the distal nerve trunk, rather than buckling and growing laterally to form neuromata as with no tension, is discussed. It is concluded that slight to moderate tension on the suture line is not harmful and may be advantageous, and that maximum tension, although not desirable, may be necessary and at present is preferable to a nerve graft.—AUTHOR'S ABSTRACT.

CEREBROSPINAL FLUID

Cerebrospinal Fluid Examination in Diagnosis of Multiple Sclerosis.

THEODORE J. C. VON STORCH, ALBERT H. HARRIS AND TIFFANY LAWYER, JR., ALBANY MEDICAL COLLEGE AND NEW YORK STATE DEPARTMENT OF HEALTH, ALBANY, N. Y. *New York State J. Med.* 49:2145-48, Sept. 15, 1949.

Different technical methods and interpretations for the examination of cerebrospinal fluid in the diagnosis of multiple sclerosis are described. Review of the laboratory findings in several hundred specimens of spinal fluid with accompanying blood specimens showed that a special pattern commonly occurred in multiple sclerosis, the result of the quantitative gold reaction being the most important single factor.

Gold curves are now classified as A, AB, B, BC, C, CD, and D. Type A is normal; B indicates abnormality without significant degeneration; C indicates an increased cerebrospinal albumin because of increased permeability; D indicates degeneration with little or no increase in permeability. Types AB, BC and CD combine prominent features of 2 types. Electrophoretic studies have shown that the type D curve indicates a protein pattern with increased gamma globulin but no corresponding albumin increase. Pathologically, elevated gamma globulin has been reported in 80% of cases of established multiple sclerosis and is undoubtedly helpful in the differential diagnosis of multiple sclerosis, but it is believed that the quantitative gold reaction can be determined more quickly and accurately than determination of albumin and gamma globulin.

An A or AB type curve with normal protein and cell count occurs occasionally in multiple sclerosis and probably indicates a rather quiescent pathologic process. Cell counts and total protein determinations in most cases in this study

indicated fairly active inflammation reflected by a type D curve. A few cases began as acute febrile encephalitis which progressed to a chronic degenerative disease with remissions. The gold curves were, successively, C, CD and D with decreased cell count. They eventually showed a laboratory syndrome which could only be distinguished from multiple sclerosis by the clinical symptoms.

This study indicated that the schedule of 5 obligatory tests is helpful and that the quantitative gold reaction used in the New York State Department of Health is of considerable value in the differential diagnosis of multiple sclerosis. 10 references. 3 tables.

On the Passage of Penicillin from the Blood to the Subarachnoid Space in Normal Persons and in Patients with Various Forms of Meningitis. CLAUS BRUN, P. J. DRAGSTED AND H. C. A. LASSEN, COPENHAGEN, DENMARK. *Acta med. Scandinav.* 135:133-37, Fasc. 2, 1949.

Twenty-five patients with normal meninges were treated with penicillin intramuscularly every twelfth, eighth or third hour or, (in 9 cases) with continuous intramuscular injection. Even with high, constant blood concentrations of penicillin no passage of penicillin from the blood to the spinal fluid could be demonstrated in any case. In 9 patients with various forms of meningeal damage, mostly patients with bacterial meningitis, measurable quantities of penicillin were found in the spinal fluid, although, with a few exceptions, the concentrations reached were rather small. Penicillin has been given intramuscularly 3 to 8 times per twenty-four hours. The authors conclude that the concentrations found in the spinal fluid after large doses of penicillin intramuscularly do not seem sufficiently high to permit the exclusive use of extrathecally administered penicillin in bacterial meningitis.—AUTHOR'S ABSTRACT.

CONVULSIVE DISORDERS

Treatment of Status Epilepticus. C. W. M. WHITTY AND MARGARET TAYLOR, OXFORD, ENGLAND. *Lancet* 2:591-94, Oct. 1, 1949.

The treatment of 25 cases of status epilepticus is reviewed; 22 were symptomatic, 3 idiopathic epilepsies. In 11 cases the condition was fatal. This high mortality makes the occurrence of status epilepticus a serious medical emergency. Comparison of those who recovered and those who died suggests that the longer the interval between onset and start of treatment and the longer the total period of uncontrolled status epilepticus, the higher the mortality. A regimen of treatment based on the use of paraldehyde given via muscles or veins is detailed as both safe and usually effective; 10 cc. paraldehyde are given intramuscularly deep in the gluteal region and this is repeated in 5 cc. doses every half hour until fits are controlled. If the patient's state of hydration requires it, an intravenous glucose saline or plasma drip is set up. Paraldehyde is then given either intermittently via the drip tubing, or in solution in the drip fluid (it is soluble 1:8 in normal saline). In an illustrative case it was given by the latter method in amounts varying from 2 to 6 cc. per hour for a period of 67 hours—a total of 202 cc. being given by this route in three days. The authors emphasize that

although status epilepticus may sometimes appear to respond to very mild treatment, it is wisest to regard every case as potentially fatal, and to act accordingly. The dosage of paraldehyde they use is greater than usually advised. If this drug is not at once available attempts to control the fits by other means should be made immediately. If phenobarbitone is used it should be given in 6 to 12 gr. doses, preferably as a solution into muscles or veins, smaller doses often being ineffective. Sudden cessation of anti-convulsant drugs is a common precipitating factor in status epilepticus and epileptic patients should know this. 2 references. 3 tables.—AUTHOR'S ABSTRACT.

Newer Concepts of Epilepsy. ROBERT A. HAYNE AND TOM R. TURNER, TULSA, OKLA. J. Oklahoma M. A. 42:426-28, Oct. 1949.

Epilepsy may be symptomatic or idiopathic, the latter type having no demonstrable etiologic factors. Seizures may be classified into grand mal, petit mal and psychomotor attacks, and they differ in their clinical character, response to medication, and the abnormality produced in the electroencephalogram.

The grand mal type is characterized in the electroencephalogram by rapid spikes having negative electrical sign. These seizures usually respond to dilantin and phenobarbital and, frequently, are aggravated by tridione. Petit mal seizures show loss of consciousness associated with stare and, frequently, a 3/second jerking of the head and upper extremities. Electroencephalographically, there is a coincident 3/second spike and slow wave. These seizures usually respond well to tridione medication. Psychomotor seizures have a transient loss of consciousness, during which there is a well coordinated but unusual behavior. Electroencephalogram shows over all areas of accessible cortex high voltage, 6/second waves with intermittent electrically positive spikes, and negative spikes confined to the temporal lobe areas.

Recent work by Gibbs, Fuster, and Gibbs has shown that, in psychomotor epileptic patients, the posterior temporal lobe cortex is the only portion of the accessible cortex productive of negative spike activity, and, hence, presumably indicative of the source of the seizures on the cortex. Excision of these areas of negative spike activity has been carried out in somewhat more than 20 patients with encouraging results.

One of the authors (R. A. H.) has placed pick-up electrodes disposed on a needle in various portions of the corpus striatum and thalamus of severe epileptic patients and has shown the presence of negative spike activity in these regions during and between clinical seizures. This has been found to be true in both symptomatic and idiopathic types of epilepsy. 3 references.—AUTHOR'S ABSTRACT

DEGENERATIVE DISEASES OF THE NERVOUS SYSTEM

Syringo-Encephalomyelia. Discussion of Related Syndromes and Pathologic Processes, with Report of a Case. HOMER D. KIRGIS AND DEAN H. ECHOLS, NEW ORLEANS, LA. J. Neurosurg. 6:368-75, Sept. 1949.

The terms, syringo-encephalomyelia, syringomyelia, syringobulbia, and

syringopontia have usually been used in a restricted sense to refer to what appears to be a pathologic entity consisting essentially of a slowly expanding cyst originating in a paracentral site in the spinal cord or brain stem. Most investigators have considered the cystic formation to be a manifestation of a neoplastic reaction, a developmental defect, or a degenerative process. Regardless of the exact etiologic factors the significant pathophysiologic activity of the disease is the accumulation of fluid within the cyst and the resultant compression of adjacent neural structures. The syndrome most characteristic of syringomyelia is indicative of a deeply placed lesion in the cervicothoracic region, involving first fiber tracts crossing or adjacent to the midline and later extending peripherally, usually in the posterior or lateral funiculi. Commonly, there is evidence of destruction of the nuclei of the anterior column of grey matter. Such a cystic lesion in the brain stem most often is manifested by neurologic evidence of damage to the nuclei and conduction pathways close to the floor of the fourth ventricle. In the case reported, syringo-encephalomyelia, consisting of a cyst extending from the mesencephalic-pontine junction to some point below the midthoracic portion of the spinal cord, was manifested clinically mainly by evidence of involvement of nuclear groups of the medulla as well as the tracts mediating proprioceptive sensation. Decompression by suboccipital craniotomy and upper cervical laminectomy plus excision of a portion of the wall of the cyst gave pronounced but temporal relief. Roentgen-ray therapy did not prevent rapid reappearance of the syndrome. Clinical recovery to date (two years postoperatively) followed exposure of the cervical segments of the spinal cord and insertion of a tantalum drain between the cyst and the spinal subarachnoid space. 17 references. 1 figure.—AUTHOR'S ABSTRACT.

Disseminated Sclerosis. A Follow-Up of 91 Cases. J. H. D. MILLAR, BELFAST, IRELAND. *Lancet* 2:556-59, Sept. 24, 1949.

The object of this follow-up was to discover the state in 1947 of patients in whom a diagnosis of disseminated sclerosis was made in 1931-37; 121 were traced out of a total of 169. Of the 121 traced, 74 were alive and 47 had died. Sixty-eight of the living were re-examined; 51 were confirmed as having disseminated sclerosis; 7 were of uncertain diagnosis and 10 were considered, in 1947, to be probably not cases of disseminated sclerosis. These 10 cases included 4 cases where there were no symptoms or signs of any disease; 1 had an angioma of the cervical cord and to the remaining 5 it was difficult to attach a satisfactory diagnosis. Forty of the 47 dead were considered in retrospect to have suffered from disseminated sclerosis. It was shown that if those not traced were not all dead, then the 91 cases analyzed were not a biased sample. These cases were analyzed on the basis of the probability of survival at 5-year periods. The results suggest that patients with a monosymptomatic onset have a better prognosis than those with a polysymptomatic onset. Also patients with an onset with visual symptoms have a better prognosis than those with motor symptoms; patients whose first symptoms appear before the age of 25 have a better prognosis than those with a later onset.

Three out of 89 families showed a disease like disseminated sclerosis in more than one member. The literature on the familial aspects of disseminated sclerosis was discussed. Published reports were found of 9 families in which more than one member had disseminated sclerosis verified by necropsy. Attention was also drawn to Thum's work on twins; he found 13 pairs of identical twins of which one twin had disseminated sclerosis but the other had not; he concluded that there was no hereditary influence in the disease.

Swayback has not been reported in Northern Ireland. In 11 cases out of 49 there was evidence of close contact with sheep and lambs. How this compares with the incidence of the contact of human beings with these animals in the general population is unknown. 22 references.—AUTHOR'S ABSTRACT.

DISEASES AND INJURIES OF THE SPINAL CORD AND PERIPHERAL NERVES

Some Therapeutic and Neurological Aspects of Peripheral Nerve Injuries. W. B. HENDERSON, GENERAL INFIRMARY, AND D. TAVERNER, UNIVERSITY OF LEEDS, ENGLAND. *Lancet* 1:1084-88, June 25, 1949.

Certain therapeutic and neurologic aspects of nerve injuries based upon experience with over 400 cases in prisoner-of-war hospitals are discussed. Prevention of joint stiffness is most important in the management of nerve injuries as permanent stiffness frequently will make good spontaneous muscular recovery ineffective. The chief faults are poorly applied splints and failure to impress the patient with the importance of frequent digital manipulation. Stretching of muscles does not seriously retard recovery; unsplinted paralyzed muscles rarely, if ever, stretch beyond the normal limit of relaxation. Good recovery occurred in muscles continuously stretched two or three months and ulnar claw hand gradually disappeared in six to twelve months as power returned, during full recovery, without splintage or physiotherapy. Faradism supplies the stimulus of exercise and undoubtedly improves the strength of proximal muscles after severe lesions or nerve suture. It increases return of the greatest obtainable muscle power but the quality of eventual recovery is dependent upon the correctness of axonal re-innervation. Galvanism delays the diminished muscle atrophy but hardly benefits partial recovery from axonal confusion. Lack of physiotherapy, reasonable operative delay, and distance of regeneration cause less harm than incorrect innervation.

Bulb suture is valuable when the gap in the nerve is not too great to permit end-to-end suture without tension. The two-stage operation should be done when there is any doubt about getting the nerve ends together easily without tension in one stage with only partial joint flexion. Many operative failures result from nerve ends tearing apart or tension. Bulb suture facilitates removal of enough nerve to provide healthy ends. Every effort should be made at the original debridement to approximate roughly divided nerve ends because prevention of 2 or 3 inches of retraction greatly facilitates secondary suture. Late operations are worth doing in proximal muscles, but only for high lesions.

Motor nerve fibers are more susceptible to injury than cutaneous sensory fibers. In injury to a mixed nerve, power is usually more affected than cutaneous sensation. The latter is therefore more important in assessing the severity of nerve injuries. Less recovery after injury occurs in the muscles to the digits than those acting upon the more proximal joints, partial recovery being greater in those of the ankle and wrist than of the toes or fingers. It is doubtful if regenerating axons can bridge an extensive gap in a nerve but functional recovery is complete, regardless of height of the lesion, if all axon sheaths are intact. Complete maturation and functional recovery do not occur after axon sheaths have been broken. Unequal functional recovery may occur between various nerves and in the territory of one nerve after high lesions. The importance of deficient central coordination of peripheral functions after partial recovery as a factor in the incomplete recovery of distal muscles is emphasized. 15 references.

Injuries to the Peripheral Nerves and Their Treatment. WINCHELL MCK. CRAIG AND COLLIN S. MACCARTY, ROCHESTER, MINN. *Surg. Clin. North America* 29:973-94, Aug. 1949.

Injuries to the peripheral nerves must be considered to rank with other related injuries to the extremity and adjacent structures. These, of course, include injuries of blood vessels, bones, tendons, muscles and viscera and particularly injuries of the thorax. An injury of a nerve without involvement of other structures is indeed rare. Consequently the treatment of nerve injuries is complicated and demands the full attention of many specialists including, in particular, the neurologic surgeon, vascular surgeon, orthopedic surgeon, general surgeon, physical therapist and all the other workers in the field of basic sciences who have advanced the treatment of nerve injuries through their untiring research.

To understand nerve trauma requires knowledge of three types of injury that occur to nerves. The first type is complete anatomic division of the nerve. The second is a lesion in continuity in which the supporting structure of the nerve is preserved but there is such a disturbance of the nerve fibers that true degeneration occurs peripherally. The third type is the transient physiologic block due to a minimal lesion of the nerve from which complete and rapid recovery often occurs. Clinically these types of injuries result in loss or perversion of function either in the afferent or efferent components of the nerve or both.

Generally speaking, immediate surgical treatment for a divided nerve is unnecessary and in fact may be unsatisfactory. Operation delayed up to three months may be more beneficial. Sympathectomy for vascular insufficiency and causalgia may precede operation on the nerve itself. When operation is undertaken on the nerve, certain types of incisions should be utilized and marked attention should be paid to certain principles of plastic surgery to avoid scar contractures and still obtain a maximal amount of exposure. The anastomosis of severed ends should be accomplished without tension after the ends have been cut back to normal fasciculi. Immobilization should be performed properly and should not last longer than six weeks. Fibrin clot technic is worthy of con-

sideration when practical. Neurolysis is indicated for injuries in continuity.

Postoperative stimulation, active and passive motion, and re-education are exceedingly important. This work of the physical therapist is further augmented by his study of the electrical reactions of the muscles as they are re-innervated which helps the neurologic surgeon follow the success or failure of the surgery. By this means the physical therapist can thus advise secondary procedures, anticipate return of function and direct the rehabilitation of the extremity. 20 references. 12 figures.—AUTHOR'S ABSTRACT.

Multiple Primary Tumors of the Spinal Cord. Report of Case.

HENDRICK J. SVIEN, JOHN D. CAMP AND ALFRED W. ADSON, ROCHESTER, MINN.
Surg. Clin. North America 29:1223-31, Aug. 1949.

A woman, age 29, first presented herself for examination in March, 1935. She presented signs and symptoms of a lesion of the spinal cord at the level of the fifth thoracic vertebra. Laminectomy was performed and a meningioma 2 cm. by 1.5 cm. was removed. During her convalescence, a neurofibroma was removed from the right superior carotid triangle. The patient improved rapidly and was soon able to return to her usual activities as a housewife. This patient was considered to have von Recklinghausen's disease.

For the next twelve years she enjoyed a normal existence. During this period she was delivered of 2 normal infants. In October, 1948, she again registered at the clinic. She stated that she had first noticed tinnitus and some diminution in hearing of the left ear in 1943. In July, 1947, she first began to notice symptoms and signs which suggested the presence of a lesion of the cervical cord. A diagnosis of 2 lesions was made: 1) a tumor of the left cerebellopontine angle, and 2) a lesion of the spinal cord in the cervical region. Myelography with lipiodol was carried out. This study revealed the presence of 2 tumors affecting the intradural and extramedullary portion of the spinal cord, 1 at the level of the fourth cervical vertebra, and the other, unsuspected from clinical findings, at the level of the interspace between the first and second lumbar vertebrae. The cervical lesion proved to be a neurofibroma, as did the lesion in the lumbar region which was removed twelve days after laminectomy in the cervical region. Postoperative convalescence was uneventful, and two and a half months after dismissal she was able to do most of her housework. She was advised to defer treatment for the possible lesion in the left cerebellopontine angle.

Three salient points stand out from the review of this case: 1) multiple tumors of the spinal cord, although rare, do occur. It behooves physicians who deal with lesions of the spinal cord to be mindful constantly of this fact and to be conscious always of the possibility of the presence of multiple tumors; 2) a patient who has multiple tumors of the spinal cord can be treated successfully and restored to normal living by judicious surgical procedures; 3) contrast myelography is an invaluable aid in the diagnosis of multiple tumors of the spinal cord. 2 references. 6 figures.—AUTHOR'S ABSTRACT.

Acute Non-Traumatic Spinal Epidural Hemorrhage. LAWRENCE I. KAPLAN AND PETER G. DANKER, NEW YORK, N. Y. *Am. J. Surg.* 58:356-61, Sept. 1949.

Two cases of acute non-traumatic spinal epidural hemorrhage are reported. Eight additional, 4 of which had the history of minor indirect trauma, have been collected from the literature. In spite of the apparent rarity of the syndrome, awareness of its existence should lead to prompt surgical intervention in an effort to avoid permanent paraplegia.

Although the etiologic factors of the non-traumatic form of spinal epidural hemorrhage remain obscure, certain factors suggest that rupture of a weak vascular wall in a pre-existing abnormality of the epidural venous plexus may be the pathogenetic mechanism of this acute spinal cord syndrome. These factors are: 1) the pathologic evidence of the focal occurrence of two types of vascular abnormalities, venous varicosities and telangiectases in the epidural space; 2) the clinical anatomy of the vertebral venous system, in which the absence of valves permits rapid transmission of increased venous pressure from intra-abdominal and pelvic veins to epidural veins; 3) the history of some form of straining effort immediately preceding the onset of symptoms in 8 of the 10 reported cases of spinal epidural hemorrhage. 13 references. 1 table.—AUTHOR'S ABSTRACT.

Metabolic Consequences of Spinal Cordectomy. IRVING S. COOPER, COLLIN S. MACCARTY, EDWARD H. RYNEARSON AND WARREN A. BENNETT, ROCHESTER, MINN. *Proc. Staff Meet. Mayo Clin.* 24:620-27, Dec. 7, 1949.

The postoperative course of a 27-year-old man who underwent cordectomy of the thoracic, lumbar and sacral segments of the spinal cord, because of cephalad progression of a glioma of the spinal cord, was notable for the development of certain metabolic phenomena. Three months after operation, bilateral mammary enlargement was noted. At that time the twenty-four-hour urinary excretion of 17-ketosteroids was 2.0 mg. and of corticosteroids, 0.3 mg. The basal metabolic rate was -22%. The serum protein measured 5.8 Gm. per 100 cc. with an albumin-globulin ratio of 1:1, and the liver was enlarged to 7.0 cm. below the right costal margin. The patient died seven months after subtotal cordectomy as a result of the effects of several intracranial gliomas.

Examination of specimens obtained at necropsy revealed diffuse congestion of the liver with atrophy of many of the parenchymal cells. There was atrophy of the glandular elements of the prostate gland. The breasts demonstrated hyperplastic ducts with thickened basement membranes and papillomatous infoldings. The testicular tubules were uniformly atrophied and there was complete absence of spermatogenesis. The adrenal cortices were markedly atrophic, and cells in the zona glomerulosa were distorted and grouped in a tubular fashion. There was diffuse congestion of the pituitary body with degranulation, vacuolization and atrophy of the cellular elements.

The pathogenesis of these findings of gynecomastia, hypoproteinemia and decreased basal metabolic rate in conjunction with hepatomegaly and "de-

masculinization" is not clear. The authors have observed similar metabolic phenomena in young adult males after severe injury to the spinal cord. Whether endocrinologic variations secondary to the alarm reaction, with or without denervation of any of the endocrine glands, are causally related to these phenomena cannot be stated at the present time. 24 references. 3 figures.—AUTHOR'S ABSTRACT.

ELECTROENCEPHALOGRAPHY

The Present Status of Clinical Electroencephalography. FREDERIC A. GIBBS, UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, CHICAGO, ILL. Bull. New York Acad. Med. 25:764-74, Dec. 1949.

The electroencephalogram shows functional rather than structural disorders of the brain; a recognition of this fact is essential in its clinical use. In cases in which there is a large area of atrophy or extensive demyelination, the encephalogram shows little or nothing, but in cases of primary and secondary reactions to injury in which neurologic or roentgenographic examination fails to localize the lesion, this lesion can often be localized by the encephalogram. In inflammatory processes, such as acute encephalitis, the electroencephalographic changes are maximal, even though clinical signs are minimal, while in more chronic disorders, such as multiple sclerosis, the electroencephalographic changes are usually slight as compared with the clinical signs.

Electroencephalography has proved of special value in the study of epilepsy, which, from the encephalographic point of view, is a disorder of rate regulation. Three general types of disordered rate regulation are found in epilepsy. In the first type there is a discharge of unusually fast waves of increasing amplitude which is followed by interrupted fast waves and then by slow activity; this type is characteristic of the grand mal type of epilepsy. The second type of encephalographic disorders in epilepsy is the spike and wave pattern; its most characteristic form is the three-per-second spike and wave type seen in petit mal epilepsy. The third type consists of high voltage six-per-second waves and square or saw-toothed four-per-second waves; this is the type of seizure discharge that is most nearly normal and is characteristic of psychomotor epilepsy. It is usually associated with negative single spike-activity in the anterior temporal region. A single spike represents the minimal epileptic discharge, and is usually focal and not associated with definite symptoms, but a spike focus in the anterior temporal region is usually associated with psychomotor epilepsy. These characteristic encephalographic findings in epilepsy are of value not only in diagnosis and prognosis, but also in determining the best method of treatment.

Encephalography during sleep is of value in diagnosis, as in sleep deeper centers "take over" the regulation of cortical activity, and therefore some types of subcortical disorders can be recorded from the cortex during sleep. Focal disorder in the temporal areas and also exceedingly fast activity (20-30 per sec.) during light sleep correlate with personality disturbances and psychiatric disorder.

Because the electroencephalogram gives evidences of pathologic-physiologic changes which are generally reversible and unassociated with anatomic changes, it is of particular value for revealing conditions that are amenable to treatment. 27 references. 1 figure.

Value and Limitations of the Electro-Encephalogram in Legal Medicine (*Valeur et limite de l'électro-encéphalogramme en médecine légale*). P. DESCLAUX, A. RÉMOND AND A. SOULES. *Ann. méd. lég.* 29:215-28, Sept.-Oct. 1949.

The electro-encephalogram has proved of definite value in the diagnosis of epilepsy, and this is of importance in legal medicine, both in criminal cases and in civil cases, in which the question of head trauma is involved. In other types of head trauma, in which post-traumatic epilepsy does not result, the electro-encephalogram is also of value in determining the extent of damage. Electro-encephalographic studies have also shown that post-traumatic epilepsy may be a late development of head trauma. Thus one study of 283 cases of head trauma showed that in the first two weeks after the injury, electro-encephalographic changes were present in about 70% of cases, but were relatively slight; between six months and a year the percentage of cases showing electro-encephalographic abnormalities diminished to 28%; between one and two years after the injury, the percentage of abnormal electro-encephalograms increased to 73%. This was due to the fact that in a considerable number of these head injuries, epileptic symptoms developed, with corresponding encephalographic changes. In some cases the electro-encephalogram is also of value in the diagnosis of cerebral deterioration due to chronic alcoholism. In carbon monoxide poisoning electro-encephalographic abnormalities are at their maximum three weeks to a month after exposure, and within a relatively short period thereafter, the encephalogram usually becomes normal. 21 references. 6 figures.

Electrical Activity of the Neostriatum, Paleostriatum, and Neighbouring Structures in Parkinsonism and Hemiballismus. RUSSELL MEYERS, ROBERT HAYNE AND JOHN KNOTT, IOWA CITY, IOWA. *J. Neurol., Neurosurg. & Psychiat.* 12:111-23, May 1949.

Electrograms were recorded from the neostriata and paleostriata and their neighborhood in ten cases of parkinsonism and one of hemiballismus. The wave characteristics of frequency, amplitude, form and polarity were compared with the corresponding phenomena of concurrently-recorded electro-encephalograms obtained from standard scalp leads, and with the electromyograms of the tremor-affected limbs. All data derived from the experimental group were evaluated in view of data and interpretations derived from 11 control subjects reported elsewhere. In all, 21 experiments were performed upon the experimental group and 11 upon the controls.

The frequency of waves derived by the bipolar technic from the several structures of the corpus striatum and neighborhood varied from individual to

individual and from time to time within each individual. The rate of electrograms recorded (by the bipolar method) exceeded that of electrograms derived from the scalp leads (by both the bipolar and monopolar methods) by one to several cycles per second. Similar observations were made among the control subjects. Short-lived bursts of moderately fast frequency (13 to 20 per second), having a duration of 0.5 to 1.0 seconds and a low-to-average voltage, interrupted at irregular intervals the slower-frequency, higher-amplitude waves generally predominating in recordings from leads placed in the corpus striatum. Such were observed in the electrostriatograms of all subjects in both the control and experimental groups.

The amplitude of electrostriatograms obtained by the bipolar technic varied from individual to individual and from time to time within each individual, approximating 14 to 25 μ v. This was of smaller magnitude than that of electroencephalograms concomitantly recorded by monopolar and bipolar technics from the standard scalp leads, the ratio being as 1:2 to 1:3. Evidence at hand suggests that the differences in amplitude between electrostriatograms and electroencephalograms depends upon the smaller quantity of tissue between pick-up electrodes in the former as compared with the latter, rather than upon the electrophysiologic properties of the cerebral tissues themselves. The findings relevant to amplitude were similar for both the control and experimental groups.

Whether electrograms were derived from scalp-ear or striatum-ear leads, the frequency and amplitude of the waves were very similar. This circumstance probably arises from the proximity of active cortical tissue of the temporal lobe to the electrode attached to the ear. The non-correspondence which genuinely exists between the electrograms from the two sources was clearly demonstrable in terms of their disparate temporal relationships and variations in wave form. The phenomena were obtained in the controls as well as in the experimental group.

Electrograms derived from the several deep-lying structures explored (e. g., caudate nucleus, putamen, globus pallidus, subcallosal bundle, etc.) exhibited no features by which one structure might be distinguished from its fellows. This observation held among both the experimental and control subjects.

Analysis of the phenomena of wave polarity and reversal of electrical sign of the electrostriatograms strongly suggested that a relatively constant, circumscribed source(s) of electrical discharge obtains within the head of the corpus striatum and/or the putamen. Such a region was almost continuously possessed of an electrical sign opposite to that of the surrounding zones. Similar findings obtained among the control subjects.

The bipolar electrograms derived from the corpus striatum of 4 among the 10 cases of parkinsonism exhibited no features by which they could be distinguished from the comparable electrograms of control subjects. Of the 6 remaining cases, however, 5 exhibited "fast" runs (rate 17 to 23 per second; duration, 2 to 6 seconds, and amplitude comparable to that of the prevailing waves of the record). Such runs frequently interrupted the slower-frequency phenomena generally characteristic of the subject's record. The sixth case, on the other hand, exhibited a singularly slow rate of dominant waves ($5\frac{1}{2}$ per second). The

source of the latter appeared to be a well-circumscribed region in the dorsal half of the caudate nucleus. The phenomena observed in these 6 cases had no counterpart among the control subjects. It was not possible to identify a consistent relationship between: 1) the type of electrostriatogram derived from a given subject, and 2) the kind and degree of clinical features of parkinsonism exhibited by him. No relation was apparent between the electrical activity of the corpus striatum and neighboring structures and the presence or absence of electromyographic activity and clinically observable alternating tremors. Moreover, when electromyograms corresponding to tremor activity were recorded, their frequencies (4 to 5 per second) did not correspond to those of the concomitantly recorded electrostriatograms and electro-encephalograms.

The electrograms obtained from the one case of hemiballismus in the experimental group did not differ materially from those of 11 control subjects.

The findings lend support to the hypothesis that, from the pathophysiologic viewpoint, parkinsonism may differ from case to case in regard to the neural loops usurped. A multi-ordinal concept of the neural mechanisms involved in the production of tremors and rigidity is suggested, in contradistinction to a unit-factor process (e. g., "disease" of the substantia nigra) such as has traditionally been sought in histopathologic terms. 29 references. 9 figures. 1 table.

—AUTHOR'S ABSTRACT.

Electroencephalography Following Head Injuries in Children. KARL-AXEL MELIN, STOCKHOLM, SWEDEN. *Acta paediat. Upps. Supp.* 75:152-74, 1949.

In order to investigate the special problems involved in electroencephalographic examinations following upon acute head injuries in children, EEG examinations of 134 children with such injuries were made at Kronprinsessen Lovisas Children's Hospital in Stockholm. Seventy-two of the children were examined within twenty-four hours and 117 within four days after the trauma.

There were EEG changes among all injury groups; the most pathologic findings were among the most severely injured. Investigation of the connection between the type of injury and the severity of the EEG changes showed that within the slight injury groups a large number of EEGs were normal or only slightly changed, while the most severely injured all showed markedly pathologic records. As in adults, skull fractures in older children were usually combined with pronounced and persistent EEG changes. In smaller children this did not seem to be the case.

Studies of the connection between the clinical healing course and the disappearance of EEG changes showed good correlation between the two. In all cases, however, the EEG findings were both more pronounced than the clinical condition indicated and more persistent than the clinically observable symptoms. Over a month after the trauma 7 patients showed a pathologic record; 4 of these had persistent symptoms. In children whose injuries are healing a renewed trauma seems to produce a proportionally more powerful effect than the first. The EEG changes observed included general dysrhythmia of various degrees, often combined with more or less pronounced hypersynchronia, bursts of large 2-5/sec.-

waves, and in isolated cases so-called "depressed activity." In 18 cases there were localized findings, in 11 in connection with fractures of the skull.

Electro-encephalography is a valuable method of examination in cases of acute cerebral injury in children. It is an effective complement to the clinical examinations and in a large number of cases permits objective recording both of the nature and severity of the injury and of the healing process. 16 references. 7 figures.—AUTHOR'S ABSTRACT.

HEAD INJURIES

Cerebral Injuries Due to Explosion Waves—"Cerebral Blast Concussion." A Pathologic, Clinical and Electroencephalographic Study. FRITZ CRAMER, NEW YORK, N.Y., SAMUEL PASTER, MEMPHIS, TENN. AND CHARLES STEPHENSON, HARTFORD, CONN. *Arch. Neurol. & Psychiat.* 61:1-20, Jan. 1949.

The syndrome met universally in all theaters of war and usually discussed as "Blast Concussion" was presented from the point of view of its organic etiology, as against a functional or psychogenic basis. The interest in this phase of the problem arose chiefly from the authors' experience with a typical clinical case of postconcussional syndrome following exposure to a nearby mortar shell explosion, which came to autopsy about three months after the exposure. The symptoms of headache, dizziness, intolerance of noises, etc., had been continuous in the interim, but were gradually abating. Death was due to a delayed post-traumatic hemorrhage from a lesion in the thalamus which was determined by histologic studies to be a subacute post-traumatic encephalomalacia. Subsequently, a series of 441 cases with a similar history of onset of the typical syndrome was examined clinically and by electroencephalography. Primary psychoneurosis was ruled out, by appropriate psychiatric and psychometric studies, as the etiologic origin of the symptoms. Persistent inequalities in the pupils and slight persistent differences in the reflexes were the chief neurologic findings. The electroencephalograms showed a significantly higher incidence of borderline and abnormal tracings than was found in a smaller group of control cases. Suppression of alpha activity was likewise found, with significant incidence. In addition to these there were found increased intermediate activity and "double alpha," although these were not found to be statistically meaningful. The summation of these characteristics indicated a reasonable probability that there was residual cerebral damage in these cases. The persistence of findings as long as two years after injury, with the mean of three months, also lent emphasis to the probability of severe damage being present in many. 43 references. 3 figures. 2 tables.—AUTHOR'S ABSTRACT.

Chronic Posttraumatic Headache and the Syndrome of Cervical Disc Lesion Following Head Trauma. AIDAN A. RANEY, R. B. RANEY AND C. R. HUNTER, LOS ANGELES, CALIF. *J. Neurosurg.* 6:458-65, Nov. 1949.

Chronic post-traumatic headaches have often been attributed to traumatic

intracranial lesions. The presence, severity and frequency of the headache are often so disproportionate to the extent of the demonstrable intracranial lesion that there have appeared reports suggesting that such headache may be due to fracture of the skull, scalp laceration, or other traumatic lesion of the head. Review of the literature and observation of clinical cases of chronic post-traumatic headaches have caused us to doubt the validity of the assumption that traumatic lesions of the scalp, skull, intracranial contents and other structures of the head are often responsible for chronic headache.

Headache, even in the frontal region, can be produced experimentally by injecting irritating solutions into the suboccipital and upper cervical region. Here also have been found pathologic processes responsible for headache, and such headache can be relieved by procaine infiltration in these regions. Cervical intervertebral disk lesions are perhaps the most common chronic, pain-producing pathologic processes in the neck. It is an accepted fact that trauma, often slight, frequently causes or aggravates disk lesions. Further, it is a certainty that few, if any, instances of head trauma occur without some of the force being transmitted to the neck. It can be assumed that traumatic lesions of well-vascularized tissues will heal and become asymptomatic in a relatively short period of time. This rapid healing cannot be expected in lesions of the intervertebral disks, because, having no blood supply, fibroblastic invasion for rapid repair cannot occur, and symptoms may persist for months or years, until fibrous and osseous reaction surrounds and immobilizes the lesion.

Headaches may be regarded as the "lumbago" of cervical disk lesions, corresponding to "lumbago" of the low back which usually precedes the radicular extremity symptoms of lumbar disk herniation. In the early stages of cervical disk herniation, patients often disregard the minor neck discomforts until they initiate a vicious cycle of muscle spasm and pain. When this process involves the suboccipital muscles, the resultant pain may be referred to the frontal or temporal regions or be so severe as to be poorly localized and reported by the patient to be a generalized headache. Physical examination shows spastic, tender muscles in the neck and suboccipital region. Relief by neck traction and procaine infiltration substantiates the diagnosis of cervical disk lesion as a cause for the headache. 52 references.—AUTHOR'S ABSTRACT.

INFECTIOUS AND TOXIC DISEASES OF THE NERVOUS SYSTEM

The Differential Diagnosis of Poliomyelitis. HENRY W. WOLTMAN, MAYO CLINIC, ROCHESTER, MINN. *Rocky Mountain M. J.* 46:620-27, Aug. 1949.

The differential diagnosis of poliomyelitis covers 3 periods of the disease: first, the pre-paralytic, febrile, neuro-irritative stage; second, the neuromyolytic stage; third, a diagnosis in retrospect. Differentiation in the pre-paralytic stage must be made from the various acute infections and especially meningitis, encephalitis and myelitis. It has been well described and is not discussed here except to emphasize the necessity of a neurologic examination and laboratory tests.

Cases not seen before the paralytic stage must be differentiated from fifteen other diseases. In most of these, there is no increase of cells in the spinal fluid. Epidemic parotitis may be complicated by a rapidly developing paralysis of one or more limbs or muscles occurring with, or soon after, swelling of the parotid gland or testis. Spinal fluid pressure is usually increased, cell count is high, and cells are chiefly lymphocytes. A rapidly oncoming paralysis which may require the use of a respirator in a few days may develop in carcinomatous meningoradiculitis. The original tumor may be found, spinal fluid protein is usually much increased, while lymphocytes, neutrophils and occasionally malignant cells are found in the fluid. Periarthritis nodosa complicated by early paralysis is characterized by a preceding long illness, and frequently by leukocytosis or eosinophilia. The muscle weakness of neuronitis tends to be diffuse and symmetrical, loss of sensation is minimal, and there is an extremely high protein concentration in the spinal fluid.

The paralysis of diphtheritic polyneuritis sometimes begins in the extremities with later palatal involvement. Usually, however, paralysis of the extremities develops several weeks or months after paralysis of the palate. Ataxia is marked and often early. Spinal fluid protein may be high but cell count may be normal. The diphtheria bacillus may be present in the faucial secretions. The remaining diseases to be differentiated include acute porphyric neuritis, Landry's paralysis, botulism, tick paralysis, triorthocresyl phosphate poisoning, polyneuritis recurrens, familial periodic paralysis, brain tumor and hysterical paralysis. All of these may be distinguished by absence of increase in either cells or protein of the spinal fluid. A particularly confusing condition arises when poliomyelitis is superimposed upon an already injured extremity.

Diagnosis in retrospect involves consideration of paralytic residuals of developmental anomalies and neurodegenerative diseases which developed so slowly as to be imperceptible. The cerebral palsy of childhood is frequently unilateral with limited but uniformly distributed wasting. Tendon reflexes are usually increased and there is a positive Babinski sign. The feet and legs of myelodysplasia are sometimes considered as residuals of poliomyelitis but roentgenograms often show the occult variety of the defect. The differential diagnosis of poliomyelitis is urgent but, when considering it, the fact that must be remembered is that this disease may complicate any physiologic occurrence, such as pregnancy, or some injury or disease. 3 references. 2 tables.

Absence of Spasm During Onset of Paralysis in Acute Anterior Poliomyelitis. LEWIS J. POLLOCK, BENJAMIN BOSHES, ISIDORE FINKELMAN, HERMAN CHOR, FREDERICK HILLER, MEYER BROWN, ALEX J. ARIEFF, ERICH LIEBERT, ELI L. TIGAY, MAURICE SCHILLER AND IRVING C. SHERMAN, CHICAGO, ILL. *Arch. Neurol. & Psychiat.* 61:288-96, March 1949.

The clinical signs of acute anterior poliomyelitis have been well documented in the literature by eminent and capable neurologists. From 1916 to 1917, as at present, neurologists have been excluded from participation in continuation of

studies in acute anterior poliomyelitis. This has resulted in gross misconceptions regarding the symptomatologic and pathophysiologic factors of the disease and has led to needless studies upon hypothetical so-called spasm, mental alienation and incoordination.

Although every neurologist is familiar with the evolution of the signs and symptoms of early poliomyelitis, a careful study of the signs and symptoms during the development of paralysis was planned. This plan consisted of noting the results of careful, repeated, frequent examination day and night of patients from the time of their admission to the Chicago Municipal Contagious Hospital, when the diagnosis was made or presumed, until the end of their quarantine period. Eleven neurologists were rotated in tours of duty, day and night for thirty days. The results of this study showed that in no instance was there evidence of muscle spasm.

Tenderness occurred in 8% of a group of 16 with resulting severe muscle paralysis and with total muscle group examinations numbering 2,919. It never exceeded 25% at any time. In this same group, stretch pain was elicited in only 3% of muscle group examinations numbering 2,653. It never exceeded 15% at any one time. In a group of 14 where the muscles remained unparalyzed or only slightly weak, tenderness occurred in only 1.5% of 5,952 muscle group examinations and stretch pain was practically absent.

Stretch pain and tenderness occur more frequently in completely paralyzed muscle groups but in only a small percentage of the total muscle group examinations during the development of paralysis. Both tenderness and stretch pain occur at a time when paralysis has progressed fairly well. With some exceptions, stretch pain usually begins only when paralysis has reached its peak and often when it has begun to recede.—AUTHOR'S ABSTRACT.

The Management of the Symptom Complex in Acute Poliomyelitis. EMIL SMITH, DAVID J. GRAUBARD AND PHILIP ROSENBLATT, BROOKLYN, N. Y. *New York State J. Med.* 49:2655-60, Nov. 15, 1949.

Acute poliomyelitis not only involves the gray matter of the spinal cord, but also produces inflammatory changes in the sympathetic ganglia. A focal inflammatory process in the spinal cord can, by a spread of excitation, produce all the bizarre symptomatology: angiospastic phenomena, hyperhidrosis, and dysfunctions of the gastro-intestinal and urinary systems.

It is the purpose of this report to evaluate the clinical response of 126 poliomyelitis patients treated with sympatholytic drugs during 1948. The drugs used were procaine hydrochloride, diethylaminoethanol hydrochloride and Priscoline hydrochloride. One hundred and twenty patients were treated with Priscoline, 4 with intravenous procaine and 2 with diethylaminoethanol. The dosage of Priscoline was determined by: 1) the age group; 2) the reaction to the drug. The results with this form of therapy were: a sense of well-being, more comfort, better sleep, improved appetite, subsidence of acute pain, relief of flexure contractures, decrease in sweating, disappearance of muscle twitchings.

This method provides a favorable clinical response, not only with the relief

of pain and muscle spasm, but also with satisfactory circulatory changes in the vasospastic ischemic extremity of the acute poliomyelitis patient. 17 references, 4 figures.—AUTHOR'S ABSTRACT.

Bacterial Meningitis and Other Diseases Affecting the Meninges.

A Review of 349 Cases. WILLIAM L. COVER, M.D., SAN BERNARDINO, CALIF. California Med. 71:197-206, Sept. 1949.

A survey was made of 349 cases of disease affecting the meninges, seen at the San Bernardino County Charity Hospital between July 1, 1940 and July 1, 1948. Included in this group were 88% of the cases of poliomyelitis and 91% of the cases of epidemic meningitis reported to the San Bernardino County Health officer during a five-year sample period. This affords a reliable report of the incidence and course of such disease in a county occupying 20,157 square miles and with a population estimated at 264,895 persons. Of the 349 cases reported, 154 or 44% presented findings characteristic of a virus infection, 158 or 45% were bacterial meningitis as proved by bacteriologic or postmortem histologic findings, and 37 or 11% could not be identified bacteriologically although they presented the clinical findings of bacterial meningitis.

The differentiation between atypical virus and bacterial meningeal infections proved less difficult than had been anticipated. No case diagnosed as bacterial suffered sequelae characteristic of a virus infection and no case diagnosed as a virus infection proved to be of bacterial origin. Of 195 cases clinically diagnosed as bacterial meningitis, the infecting organism was not identified in 37 or 19%. The etiologic agent was identified by bacteriologic or pathologic technics in the remaining cases. Tuberculosis was responsible for 50 cases or 25%, the meningococcus for 62 cases or 33%, *H. influenzae* for 20 cases or 10%, and the pneumococcus for 14 cases or 7%. Various other organisms accounted for 12 cases or 6%. This distribution of cases is at variance with most reports because no epidemic of meningococcus meningitis occurred during the eight years in question and because only proved cases are included under the various diagnostic heads.

Clinical and laboratory data are presented in tabular form on 70 cases of bacterial meningitis seen during 1945-1948 when penicillin was available. The differential diagnosis, treatment and treatment failures are discussed.—AUTHOR'S ABSTRACT.

Otogenic Brain Abscess. VOLNEY BULTEAU, SYDNEY, AUSTRALIA. M. J.

Australia 2:423-26, Sept. 17, 1949.

Ten years ago it could be said that the prognosis for brain abscess was no better than it was in McEwen's hands fifty years ago; indeed, in some series it was worse. Analysis of the cases at the Royal Prince Alfred Hospital during the past ten years shows the vast improvement in the prognosis since the production of penicillin. It also shows the peaks of incidence in adolescence and in middle age, and the better prognosis in the former.

A vigilant appraisal of the types of middle ear disease which may lead to

an abscess is essential, the subacute otitis which persists for several weeks in spite of all measures, and the chronic suppurative otitis with cholesteatoma, granulations, and persistent offensive discharge. Pathways of infection may be: 1) by contiguity leading to an extradural abscess; 2) by continuity either by the perivascular route, or, less commonly, by the intravascular route. A localized area of encephalitis is produced in the white matter—not the cortex. Its subsequent behavior depends on the equation of virulence of organism and resistance of host. The organisms are mostly sensitive to penicillin.

Four phases traditionally comprise the clinical course. The first is caused by the initial encephalitis and is characterized by an acute fever of varying intensity. During the quiescent, second (or "take down") phase the capsule is in process of formation. The manifest third stage follows, with fits, pareses or coma. The fourth is the terminal phase—respiratory paralysis or meningitis. Systemic changes and general brain symptoms are usually marked. Both may be vitally significant since localizing signs are relatively late in appearing. The latter vary with the site of the abscess; if in the temporal lobe, disorders of speech and defects in the visual field may occur. In cerebellar abscess, incoordination, nystagmus, hypotonia and neck rigidity are the more usual. Examination of the C. S. F. yields variable results, the "syndrome de discordance" being of particular value. Evaluation of the clinical features, facilitated by careful history-taking and thorough examination of the central nervous system, will aid in the recognition of the abscess. 1 reference. 2 figures. 1 table.—AUTHOR'S ABSTRACT.

A Case Report of Cryptococcus Meningitis. CHARLES H. DEWAN, RAYMOND J. LEFFLER AND THOMAS S. COLLETTE, SAYRE, PA. Guthrie Clin. Bull. 19:75-80, Oct. 1949.

The patient, a 2-year-old white boy, was admitted to the hospital with a referring diagnosis of "brain tumor or other central nervous system pathology." Following examination a craniotomy was performed disclosing thickened meninges. Fluid from the craniotomy demonstrated numerous large budding yeast-like forms which resembled *Cryptococcus neoformans* morphologically. With this knowledge the organisms were then recognized on the histologic section of the meninges. The organism was found to be not sensitive to 0.05 mg. per ml. of streptomycin nor to 5 units per ml. of penicillin. Some incomplete inhibition was noted at a concentration of 15 mg. per cent of sulfadiazine.

Penicillin, sulfadiazine, potassium iodide and actidione were administered but in spite of this the patient's course was downhill and the child succumbed approximately five weeks after admission. Necropsy findings indicated meningeal infection with *Cryptococcus neoformans* leading to interference with the cerebrospinal fluid circulation, and hydrocephalus.

The diagnosis of *Cryptococcus neoformans* meningitis appears to depend on cognizance of its existence since ordinary methods are quite satisfactory in demonstrating the organism. 9 references. 3 figures.—AUTHOR'S ABSTRACT.

Two Cases of Pseudo-Tumoral Encephalitis (*A propos de deux cas d'encéphalite pseudo-tumorale*). T. OTT AND J. D. BUFFAT, UNIVERSITY OF LAUSANNE, SWITZERLAND. *Rev. med. Suisse rom.* 69:897-907, Dec. 1949.

This paper reports 2 cases of encephalitis in which the symptoms simulated those of an intracranial neoplasm. In the first case the patient, a man 31 years of age, developed headache and vomiting, and suddenly went into coma. Ventriculography showed no evidence of an intracranial tumor and there were no definite localizing symptoms, hence a decompression operation was not done. The patient died within a few days, without regaining consciousness. Autopsy showed a form of hemorrhagic encephalitis with generalized cerebral edema.

In the second case, the patient was a man 27 years of age. The symptoms at onset were those of encephalitis with headache and fever; subsequently left hemiplegia and homonymous hemianopsia developed; the patient became comatose. The symptoms indicated a lesion of the right temporoparietal region, possibly a cerebral abscess. Ventriculography indicated a localized lesion in that area. At an exploratory operation only localized cerebral edema was found. An intracerebral injection of penicillin was given, and a decompression done. For a few days, the patient's condition was critical, but he then showed rapid improvement. Since his discharge from the hospital some spastic paresis, very slight in the lower extremity and somewhat more marked in the hand, and hemianopsia of the left lower quadrant still persisted. In this case probably both the local use of penicillin and the decompression had a favorable effect.

Sequelae of Mumps-Meningoencephalitis. VERA OLDFELT, LINKÖPING, SWEDEN. *Acta med. Scandinav.* 134:405-14, Nov. 7, 1949.

In 75 cases with mumps meningo-encephalitis which were preceded, accompanied or followed by typical salivary gland involvement, treated at Stockholm Epidemic Hospital during epidemics of mumps in 1942-1943, 15 have been found to be suffering from lasting ill-effects at follow-up examinations three to five years after the onset of the disease. In addition there are 5 dubious cases. In only a few cases are the sequelae of a relatively severe nature: one child with total unilateral deafness, another child with severe epilepsy, and one man with vestibular dizziness. The sequelae in other cases are milder, although a constant source of irritation for the persons in question. Thus, diverse mild forms of eye and ear symptoms have been demonstrated, as well as some mental symptoms of a neurasthenic nature both with and without headaches, and one (or two) cases of endogenous obesity, possibly due to injury to the hypothalamus. In a few cases changes have been noted on the electroencephalograms.

The risks of permanent ill-effects after mumps meningo-encephalitis appear to be greater in those cases in which distinct symptoms of encephalitis have been present at the acute stage. On the other hand, judging by this investigation, there is no connection between the spinal fluid findings at the acute stage and later symptoms. 14 references. 7 tables.—AUTHOR'S ABSTRACT.

Encephalomyelitis Complicating Measles. ERIK JACOBSON AND BÖRJE HOLMGREN, HOSPITAL FOR INFECTIOUS DISEASES, STOCKHOLM, SWEDEN. *Ann. paediat.* 173:231-45, Oct. 1949.

At the Hospital for Infectious Diseases of Stockholm, 48 cases of encephalomyelitis complicating measles have been treated from 1925 to date. The experience at this Hospital, and a review of the literature indicates that encephalomyelitis complicating measles is increasing in incidence and in severity. In the measles epidemic of 1949, 17 cases of measles encephalomyelitis were treated at the Hospital, 2 of which were fatal, and 5 or 6 others which were of an unusually severe type. Encephalomyelitis complicating measles may occur at any age, but since most of the cases of measles occur in children before school age or in the early school ages, cases of measles encephalomyelitis also occur most frequently in these ages. In over two-thirds of the cases, the symptoms of encephalomyelitis have their onset on the third to the seventh day after the eruption of the exanthema. The symptoms are variable. The most frequent symptoms at onset are headache and a steep rise in temperature, followed by increasing drowsiness sometimes progressing to stupor and complete loss of consciousness. In other cases, cramps are an early symptom, with loss of consciousness followed by pronounced muscular rigidity. In the 1949 epidemic an unusually high incidence of bladder paresis was noted in 9 of 17 cases. Respiratory paresis may also occur, in which case the use of the respirator is indicated. No specific therapy that is effective against measles encephalomyelitis has yet been found. A careful general treatment is employed, with care to avoid giving an excess of fluids, which burdens the vascular system and tends to increase the edema of the brain which is present in comatose and convulsive cases.

Among the cases of measles treated recently, electro-encephalographic studies have been made in 18 patients, in 14 of whom there were definite symptoms or suspicious symptoms of encephalomyelitis; in these cases the electro-encephalograms were made within one week after the onset of these symptoms. Repeated examinations have been made in most of these cases. In the 14 patients with symptoms of involvement of the central nervous system, 11 showed abnormalities in the electro-encephalogram at the first examination, 6 of these also showed abnormalities at the second examination, and 3 at the third examination. In 3 patients in whom the symptoms were those of meningomyelitis rather than encephalitis, the electro-encephalograms were normal. They were also normal in the 4 patients without any symptoms of central nervous system involvement. Slow, high amplitude frequencies are characteristic of the electro-encephalogram in the acute stage of measles encephalitis; these slow frequencies disappear and the rapid frequencies reappear as the EEG becomes normal. It was found that the clinical symptoms disappeared before the EEG became normal in several cases; there was only one case in this group in which the clinical symptoms of encephalitis persisted for some time. The findings in these cases indicate that encephalograms may be of definite aid in the diagnosis of measles encephalomyelitis and in following the course of the disease, especially in recognizing any abnormalities that persist and indicate the possibility of convulsions and postencephalitic epilepsy. 25 references. 3 figures.

Acute Disseminated Encephalomyelitis Following Herpes Zoster, Vaccination and Immunisation. LIONEL WOLMAN, M.A., SQUADRON LEADER, RAF, HALTON, ENGLAND. *Lancet* 6587:985 87, Nov. 26, 1949.

A case of acute disseminated encephalomyelitis occurring four weeks after an attack of ophthalmic herpes zoster and twelve days after combined vaccination and immunization is described. Apparently only two cases of encephalitis occurring after both herpes zoster and vaccination have been published. In both these cases the vaccination was done as a therapeutic procedure for the herpes zoster, whereas in the author's case the herpes zoster had healed before routine vaccination was done. The case described recovered so that owing to the time intervals, the correct diagnosis was problematical.

Possible etiologic factors are discussed. Postvaccinal encephalitis and zoster encephalitis are not thought to be the likely diagnosis, but it is suggested that either the zoster virus was activated by the second virus due to vaccination, or that the foreign protein introduced by immunization acted as an adjuvant to the viruses, thus relating the case to experiments on animals. Although it is unfair to generalize from a particular case, the lesson, if any, to be drawn from this report seems to be that if there is a history of recent virus infection, especially herpes zoster, vaccination or immunization should be deferred for at least four to six weeks (the incubation period of zoster encephalitis), because of the possibly increased risk of encephalitis. 20 references.—AUTHOR'S ABSTRACT.

Isolation of a New Virus During an Epidemic of Meningo-Encephalitis in the Region of Vyskov, Moravia (*Isolement d'un virus nouveau d'une épidémie de méningo-encéphalite dans la région de Vyskov, Moravia*). JAN KREJCI, VYSKOV. *Presse méd.* 27:1084, Nov. 26, 1949.

During July and August 1948, 56 patients were admitted to a hospital at Vyskov with symptoms of meningo-encephalitis; all but one recovered. Practically all these patients came from a wooded area near the city and 74% of them stated that they had been bitten by ticks before the onset of symptoms. About seven days after the bite of the tick, symptoms of headache, arthralgia and myalgia, somnolence, anorexia, nausea and vomiting developed with chills and fever (temperature about 38° C.). After five or seven days, the temperature dropped to normal and symptoms subsided almost completely. After another five or seven days, a second phase of the disease began with very severe headache and fever (40° C.); this phase lasted eight days. In both phases of the disease, examination showed evidence of meningeal involvement including a positive Kernig; this meningeal involvement was more marked in the second phase of the disease. After the second febrile phase, some patients continued to show certain sequelae for three or four months, including disturbances in hearing, transitory diplopia, paralysis of the external popliteal nerve and various paresthesias.

There were no symptoms of respiratory tract infection. The blood picture in the early phase of the disease showed a slight leukocytosis with an increased

percentage of polynuclears. Later, about the end of the fourth week, there was a definite eosinophilia. The cerebrospinal fluid in the early phase of the disease showed a slight increase in the white cell count with a preponderance of lymphocytes.

Inoculation of the blood or cerebrospinal fluid from 3 patients into mice and guinea pigs by the intracerebral, intraperitoneal and subcutaneous routes caused paralysis and death; in mice especially death was preceded by tonic-clonic convulsion. The infecting agent could be cultured in chick embryos, and when inoculated into animals produced the same symptoms and could be passed from animal to animal. The agent passed through Seitz and Chamberland filters and is apparently a virus of a new type of which the tick is the intermediary host and vector.

Extrahuman Sources of Poliovirus: New Concept on the Pathogenetics of the Viruses. R. DE ROHAN BARONDES, M.D., LOS ANGELES, CALIF. *Mil. Surgeon* 105:400-08, Nov. 1949.

There is a definite correlation of the epidemiologic factors of poliomyelitis with the climate, humidity, presence of birds, mites, insects, wildlife, and the harvesting of the fruit and vegetable crops. A possible source of viral infections overlooked in surveys are the bird-pecked, gnawed fruit and vegetables which are often observed to be contaminated by excreta (wildlife and perhaps human), and eaten unwashed, unpeeled and uncooked. Members of the Avian family are known not to be free of viral infection, e. g., ornithosis, psittacosis, bird plague, etc. One form of encephalomyelitis has been traced to mites feeding on infected birds. Certain virus-infected fertilized eggs will also transmit the virus to the chicks. Although certain filth-flies are attracted to human feces, and virus from poliomyelitis patients' feces have actually been taken up and recovered by inoculation of Rhesus monkeys, the housefly was found not involved in acquiring the virus.

In the human infection, the poliovirus most likely enters the system through the walls of the digestive tract. However, by virtue of the large size of its molecule, it is unlikely that it could pass through the walls intact unless aided by spreading factors, catalysts, etc. Apparently the pure virus, i. e., when entirely separated from its substratum of lipid and nuclear material, is much smaller in size than that generally supposed, or a small but active fraction is capable of splitting off. Here, aided by spreading factors, it ascends the vagus nerve eventually to become diffusely disseminated in the brain and spinal cord. The negative-charged poliovirus apparently combines with nerve-cell components of opposite charge to then become activated, and able to reproduce itself in the original form. A virus is an inactive agent until it finds a fertile field upon which to carry on its pathogenetic activities. The viral acceptors, or activators (proviruses) appear related to lipid and nuclear material.

One attack of poliomyelitis does not result in immunity, and what immunity does result lies only in those nerves previously in contact with the virus, the un-

affected nerve cells with intact viral-acceptors still being subject to future attack. A milder neurotropic infection by another virus might give immunity to polio-myelitis. A vaccine that holds promise is that made by grinding infected spinal cord with carbon dioxide ice, and the treating of the ground material with digestive enzymes to separate the protein-lipid material that has protective colloid action on the virus. Unsuccessful efforts to obtain a satisfactory vaccine were due mainly to too little virus present with excess protective substratum. 4 references.—AUTHOR'S ABSTRACT.

Cerebral Lesions Responsible for Death of Patients with Active Rheumatic Fever. I. COSTERO, MEXICO CITY, MEXICO. *Arch. Neurol. & Psychiat.* 62:48-72, July 1949.

It has been known since long ago that rheumatism often shows nervous symptoms. With the aid of Rio-Hortega's silver technics the author has studied the brain of patients dying during an acute attack of rheumatic fever. Lesions have been found in various structures which, for the purpose of description, can be divided into vessels and microglia.

The capillary vessels of the brain are always profoundly altered during the developmental periods of rheumatic fever. The alterations consist in: 1) dilation of the lymphatic perivascular space; 2) neoformation of argyrophillic precollagen fibrils from the perivascular histocytes; 3) growth of these fibrils, resulting in the formation of a reticular coating which surrounds long segments of the capillaries, and 4) collagenous transformation and hyalinization of the reticulum, with production of capillary sclerosis. The author believes that the dilation of the lymphatic space corresponds to an increase in the permeability of the capillary endothelium and that the passage of blood proteins causes irritation of the perivascular histocytes, stimulating them to fibroblastic activity and giving rise to sclerosis.

There are two kinds of cerebral hemorrhages in active rheumatic fever: the more frequent are produced by diapedesis and in this case blood passes into the dilated lymphatic spaces without provoking a morphologic reaction of importance in the nerve tissue; the other kind is produced by diapedesis of the endothelium and in this case they are predominantly of the annular type, and the extravasated red blood cells and necrobiotic zones are reabsorbed by compound granular cells. The entire process results in the formation of scars with aberrant nerve fibers, some hypertrophic fibrous astrocytes and slight proliferation of precollagenous fibers. Possibly, the cerebral hemorrhages are responsible for the state of acute swelling of the brain and the scars with aberrant nerve fibers are responsible for some psychiatric conditions. A frequent but inconstant finding in rheumatic brains are meningo-encephalic hemorrhages of greater extent than those just described, with thrombosis and foci of softening.

It is difficult to find zones of entirely normal microglia in the wet brain of rheumatic patients. Commonly, the Hortega cells increase their cytoplasm and retract their expansions and more of them than usual attach themselves to the capillaries. Surrounding the fresh areas of devastation, and in some apparently normal areas of the brain, the microglia acquire the modality of rod cells, while

the same focus appears densely invaded by pseudopodal forms of microglia, a few hypertrophic fibrous astrocytes and nets of precollagen fibrils.

In the brain of some children who have died of active rheumatic fever, the author has found nodules of branching microglia cells, which originate in miliary foci of necrobiosis always localized in the gray matter of, and most commonly in, the pons Varolii; the Hortega cells of these nodules soon undergo clasmotodendrosis and give place to small areas of demyelination in which a few large neuroglia cells of the protoplasmic type are found. These nodules are not necessarily related either to the blood vessels or to any of the other lesions, and they disappear in a short time, without leaving a detectable connective tissue-vascular scar. The author considers it possible that the nodules of branching microglia cells represent a hyperergic reaction similar to that responsible for the Aschoff nodule in the connective tissue and that, therefore, they represent a specific lesion of acute rheumatic fever and may be useful in the histopathologic diagnosis of the cerebral lesions during the evolutionary period of rheumatic fever. All the other aforementioned alterations can not be considered as specific for rheumatic fever. Nevertheless, all of them taken together constitute an essential and constant component, indispensable to the understanding of the anatomic picture of active rheumatic fever.—AUTHOR'S ABSTRACT.

INTRACRANIAL TUMORS

Brain Tumors in Children. DAVID CLEVELAND, MILWAUKEE, WIS.
Wisconsin M. J. 48:686-88, Aug. 1949.

Brain tumors are relatively rare in children but form their chief malignancy. Medulloblastomas are the most common variety under 10 years of age, after which astrocytomas increase in frequency. The former are highly malignant, usually originate in the roof of the fourth ventricle and grow rapidly. Projectile vomiting is generally the first symptom, indicating involvement of the medullary vagal centers. The vomiting commonly follows sudden changes in position and suggests gastro-intestinal disturbances. Tumor growth produces headache, ataxia, dysrhythmia, disturbed coordination and nystagmus. These tumors are radiosensitive but readily metastasize. Treatment is suboccipital decompression to relieve fluid pressure and deep roentgen therapy. Surgical removal may accelerate metastasis and its advisability must be determined by findings at operation.

Astrocytomas are moderately benign and have similar but less severe symptoms and a slower course than blastomas. They tend to be cystic and contain a tumor nodule. Treatment is suboccipital decompression and removal of the nodule. Deep roentgen therapy is of doubtful value. The prognosis is good. Ependymomas may develop in the fourth ventricle or other parts of

the ventricular system. When in the fourth ventricle, symptoms are vomiting, headache, ataxia, markedly increased intracranial pressure and papilledema. Ocular palsies are common. Predominating symptoms are headache and choked disks when the tumor occurs elsewhere. Treatment is surgical, every effort being made to remove the entire tumor, even though it may be a risky procedure, as deep roentgen therapy is unsatisfactory. Tumors of the pineal gland are uncommon. Symptoms in pre-adolescent children are precocious genital development and other endocrine changes. Loss of upward gaze from pressure on the quadrigeminal bodies is common. Obstruction of cerebrospinal fluid flow produces headaches, vomiting, failing vision, papilledema and progressive weakness. Surgical treatment is necessary but has not been very successful.

Craniopharyngiomas are congenital, arise from the hypophysial duct or sac, and usually develop in childhood or early adult life. Patients tend to be pudgy, mentally precocious, and have a female type of fat, hair distribution and body build. These tumors sometimes become quite large, elevating the brain and blocking the foramen of Munro. Roentgenograms are usually diagnostic as calcified areas commonly occur throughout the tumors. They may be solid or cystic, the latter frequently reforming after surgical removal. Cystic tumors are therefore often treated by uncapping and suture to the opened third ventricle, thus providing permanent drainage. Surgical removal of the solid tumor is more difficult and may be followed by fatal dropping of the brain. Successful results may follow early surgery but the prognosis without treatment is hopeless. Gliomas of the optic nerve produce progressive loss of vision followed by symptoms of pituitary dysfunction. They grow slowly and should be surgically removed as roentgen therapy is of slight value.

Unexplained vomiting, headaches, ataxia, failing vision, weakness and convulsions should suggest brain tumor. The importance of early diagnosis and treatment is emphasized.

Neuroblastoma. Report of a Case. J. R. SCHRODER, M.D., JANESVILLE, Wis. Wisconsin M. J. 48:1000-02, Nov. 1949.

A case is presented of a 4-year-old white child with original complaint of pain in her right lower abdomen and right upper leg; there was a temperature of 102° F., with no other positive physical finding. Signs and symptoms disappeared after forty-eight hours but ten days later the patient developed a right-sided limp and there was pain and muscle spasm about the right hip. The tentative diagnosis was septic arthritis and the patient was treated with penicillin. The signs and symptoms subsided slowly but completely and the patient was sent home after a hospitalization of ten days. Two weeks later a similar episode occurred, with the findings in the region of the left hip. Complete studies including x-rays of the skull and long bones, pyelograms, blood counts, agglutination studies, blood chemistry determinations and urinalyses failed to reveal anything abnormal. After a course of streptomycin she seemed improved temporarily. During the next several weeks there was migratory pain in the shoulders,

elbows, wrists, hips and knees. In spite of lack of other confirmatory evidence, a diagnosis of rheumatic fever was entertained. Approximately three months after the onset of the illness, an internal strabismus of the left eye was noted and examination revealed edema of both optic disks. There was enlargement of the liver but the spleen was not palpable. The frontal boss of the skull was prominent and the skin was bluish; the veins over the forehead were prominent. There was weakness of the outward movements of both eyes and a partial bilateral ptosis. Marrow biopsy performed at this time by Dr. Mila Pierce of Bobs Roberts Hospital, Chicago, suggested a malignant process which was at first thought to be leukemic in nature. The smears were sent to Dr. Sidney Farber, Boston, and it was his opinion that this child had a neuroblastoma, which diagnosis was confirmed at autopsy. The over-all picture from this point was one of gradual decline, the patient losing the sight of both eyes. The metastases to the frontal bones produced such marked disfigurement as to make the patient almost unrecognizable. Death occurred after an illness of six months. Post-mortem examination revealed complete replacement of the right adrenal with the tumor tissue and there were metastases to the liver and orbital bones of the skull. The cranial metastases were extradural. 8 references.—AUTHOR'S ABSTRACT.

A Simplified Classification of the Gliomas, Based on the Concept of Anaplasia. HENDRICK J. SVIEN, ROBERT F. MABON, JAMES W. KERNOHAN AND ALFRED W. ADSON, ROCHESTER, MINN. *Surg. Clin. North America* 29: 1169-87, Aug. 1949.

When the concept of anaplasia or dedifferentiation as the origin of malignant cells is applied to the neuro-epithelial tissue of the central nervous system, 4 distinct types of gliomas are delineated: 1) astrocytoma; 2) ependymoma; 3) oligodendroglioma, and 4) neurocytoma. A fifth type, medulloblastoma, although a tumor in a class by itself, must be included because of its frequency and constant histologic picture.

On the basis of clinical, histologic and laboratory data, astrocytoma, polar spongioblastoma, astroblastoma and glioblastoma multiforme are all considered to be astrocytomas of various degrees of malignancy. Tumors of this group complex have been graded according to the anaplastic concept of malignancy as astrocytomas, Grade 1 to 4, depending on the degree of dedifferentiation. Criteria for the various grades have been established solely from the histologic picture. Correlation between grade of malignancy and postoperative survival substantiates this thesis.

On the basis of clinic and histologic evidence, neuro-epitheliomas and papillomas of the choroid plexus have been accepted by most neuropathologists as being ependymomas. Together with the ependymoma and ependymblastoma subgroups, these tumors have been studied as a group and have been graded on the basis of degree of dedifferentiation as ependymomas of Grade 1 to 4. Criteria for the various grades have been established as for the astrocytomas, and correlation of grade of malignancy with postoperative survival is striking.

Although the oligodendroglioma-oligodendroblastoma group of tumors has

not as yet been graded according to degree of dedifferentiation because of the small group of tumors of this type suitable for such study, it is believed that this group can be graded with results as satisfactory as those obtained with the astrocytoma and ependymoma types.

Tumors composed exclusively or even predominantly of nerve cells are infrequently found in the central nervous system. The majority, if not all, of such tumors are a mixture of adult nerve cells and astrocytes or dedifferentiated cells of either or both types. These tumors can be graded 1 to 4 depending on the dominance of the anaplastic cells in the growth, and the term "neuro-astrocytoma" is suggested.

Because of the relatively constant and characteristic histologic structure of this type of glioma, it is believed that grading of malignancy is not indicated.

In all reported series of brain tumors the incidence of medullo-epitheliomas has been exceedingly low and in many series no tumor of this type has been found. Critical re-study of 4 tumors so classified revealed that 3 were ependymoma, Grade 4, and one was a medulloblastoma. On the basis of these observations this category of gliomas is believed to be nonexistent and has been eliminated. 16 references. 8 figures. 3 tables.—AUTHOR'S ABSTRACT.

NEUROPATHOLOGY

See Contents for Related Articles

NEURORADIOLOGY

Effects of Ultraviolet Radiation on the Exposed Brain. ARTHUR R. ELVIDGE, MCGILL UNIVERSITY, MONTREAL, CANADA AND ARTHUR A. MORRIS, WASHINGTON, D. C. *Arch. Neurol. & Psychiat.* 62:127-49, Aug. 1949.

Because of the benefits derived from the use of germicidal radiations of the operating field in surgical asepsis, the pathologic effects following five-hour exposure of animal brains to ultraviolet radiations under human operating conditions were studied in 10 cats having bilateral maximal craniotomies. The longer period of time was necessary because of the longer neurosurgical procedures. One hemisphere of each brain was shielded from the radiations and acted as a control. Ultraviolet radiations having 80% of their wavelengths at about 2,537 angstrom units were projected on the exposed hemisphere. Pathologic studies were made after killing the animals on the third, fourth or fifth postoperative day.

The meningeal and cortical vessels were usually dilated within thirty to sixty minutes. Gross congestion subsided within twenty minutes after the radiation was stopped but rapidly recurred with re-irradiation.

Cortical electrograms were made of 4 animals throughout the exposure, depressed activity occurring after one hour in 3 instances. Epileptiform spikes developed in the fourth animal after one hour, followed by a clinical epileptic

attack after five hours. These changes occurred during the period of vascular congestion.

Histologically, an intense inflammatory reaction consisting of dilated and cuffed meningeal and cortical vessels, transudation of serum, cellular exudate, diapedesis, and numerous petechial hemorrhages in the gray and white matter was found in the irradiated hemisphere. Because of the absence of corresponding differences on the control side, these changes were considered to be primarily caused by the toxic effect of ultraviolet radiations and their absorption into the cytoplasm and nucleus of affected cells.

These studies indicated that prolonged ultraviolet irradiation of the brain is harmful and that additional investigations are required to determine the length of time a brain may be irradiated without irreversible damage. Physiologic and electrographic observations during the irradiation indicated that, with frequent irrigation, the brain might be exposed thirty to forty-five minutes without permanent damage. 20 references. 18 figures.

SYPHILIS OF THE NERVOUS SYSTEM

Penicillin Therapy in Asymptomatic Neurosyphilis. A Comparison of the Effects of Amorphous Penicillin, Penicillin in Oil and Wax and Crystalline Penicillin G. FENWICK T. NICHOLS, JR. AND ALBERT HEYMAN, ATLANTA, GA. *Am. J. Syph. & Gonorr.* 33:561-70, Nov. 1949

This report presents the spinal fluid findings in 298 patients with early and late asymptomatic neurosyphilis who were treated with various forms and doses of penicillin. All of these patients had strongly positive ("active") spinal fluids before treatment and some have been followed for as long as forty-eight months after therapy. Treatment was considered to have failed if there was no significant reduction in the spinal fluid cell count eight to twelve months after therapy, or if there was an immediate fall in cell count followed by a significant rise six months or more following treatment. Only 30 (10%) of the entire series of patients showed such evidence of treatment failure. Eight (15.6%) of the 51 patients treated with the smaller doses, i. e., 2.4 to 3.0 million units, of amorphous penicillin in aqueous solution, developed evidence of failure. The use of 4.0 million units of the same form of penicillin resulted in fewer treatment failures (10.1% of 89 cases).

The best spinal fluid response was obtained among the 78 patients treated with 4.8 million units of crystalline penicillin G in aqueous solution. Only 4 (5.1%) of these patients are classified as treatment failures. This group of patients has not been followed as long as those treated with amorphous penicillin, and additional failures may be anticipated with further observance. The number of such cases, however, is expected to be very small, since 80% of this group of patients have been observed for at least twelve months, and evidence of treatment failure usually develops within this period of time. Nine (11.2%) of 80 patients treated with 6 to 9 million units of penicillin in oil and wax have developed

spinal fluid evidence of treatment failure. The results obtained with daily injections of 300,000 units of penicillin in oil and wax for twenty days appeared to be better than those obtained with triweekly injections of 600,000 units for five weeks.

The percentage of treatment failures observed in patients with early neurosyphilis was not significantly different from that in late neurosyphilis. The severity of spinal fluid abnormalities in the patients in this study did not seem to influence the incidence of treatment failures. The number of patients obtaining normal spinal fluids following penicillin therapy was greatest among patients with early neurosyphilis and among those with less severe spinal fluid abnormalities. The blood serologic test for syphilis did not show a rise in titer concomitant with the appearance of spinal fluid evidence of treatment failure.

The spinal fluid response to penicillin (4 to 4.8 million units in aqueous solution) in patients with asymptomatic neurosyphilis was compared with a group of patients with clinical manifestations of neurosyphilis. Six (10.7%) of the 56 patients with clinical neurosyphilis showed spinal fluid evidence of treatment failure, while only 10 (7.1%) of the 140 patients with asymptomatic neurosyphilis showed similar evidence of therapeutic failure. In both the symptomatic and asymptomatic patients the results obtained with crystalline penicillin G were better than those obtained with amorphous penicillin.

The majority of patients with treatment failure showed evidence of continued elevation of the spinal fluid cell count six to eight months following treatment, but occasionally twelve to eighteen months or more were required before a definite diagnosis of treatment failure could be made. The administration of small doses of penicillin for other conditions following the initial therapy for neurosyphilis may delay the appearance of spinal fluid evidence of treatment failure. None of a small group of 37 patients who received combined penicillin and malaria fever therapy showed evidence of treatment failure. Nevertheless, the use of penicillin alone in the initial treatment of patients with asymptomatic neurosyphilis is preferable because of its safety and ease of administration. 5 references. 6 tables.—AUTHOR'S ABSTRACT.

Modern Treatment of Syphilis, Including Syphilis of the Central Nervous System. EVAN W. THOMAS, NEW YORK UNIVERSITY COLLEGE OF MEDICINE, NEW YORK, N. Y. *Bull. New York Acad. Med.* 25:505-20, Aug. 1949.

This paper reports the treatment of 376 patients with active neurosyphilis with penicillin alone. Some of these patients were treated with aqueous solutions of very soluble salts of penicillin given in a dosage of 40,000 units every three hours for 150 doses. Equally good results have been obtained with daily injections of 600,000 units of POB. In the entire series of 376 patients who have been followed up for nine to fifty-four months, only 43 have been re-treated, 32 because of relapse as shown by the spinal fluid tests and 11 in an attempt to improve the clinical condition of the patient, although the results of the spinal fluid tests were satisfactory. The majority of relapses occurred in patients who

received less than 6,000,000 units of penicillin in fifteen days. One case of general paresis is reported in which malaria therapy failed to influence the spinal fluid tests, but which responded well to penicillin. On the basis of the results reported in this series, malaria or other type of fever therapy is not recommended in neurosyphilis unless penicillin fails to produce a satisfactory change in the spinal fluid tests. The best spinal fluid complement fixation tests for syphilis and the best colloidal gold tests have been found to be those employed by the New York State Department of Health laboratories. These tests are a better guide to the effectiveness of treatment in neurosyphilis than the clinical signs and symptoms, as the degree of clinical improvement depends chiefly on the site and degree of permanent damage to the central nervous system; if functioning nerve tissue has been destroyed by scar tissue, no type of therapy can restore normal function.

Recently ten daily injections of 600,000 units of procaine penicillin G in oil and aluminum monostearate are being used at Bellevue Hospital in the treatment of neurosyphilis, but no prolonged follow-up study of any of the patients treated by this method has been made at the time of this report. 20 references. 3 tables.

TREATMENT

Evaluation of Tolserol in the Treatment of Children with Cerebral Palsy.* ERIC DENHOFF, M.D., RAYMOND H. HOLDEN, M.A. AND CAROLL M. SILVER, M.D., PROVIDENCE, R. I. *New England J. Med.* 241:695-98, Nov. 3, 1949.

Sixteen cerebral palsied children, predominantly spastics, ages 3 to 8 years' who have been attending the Meeting Street School, were studied to determine the possible relaxant effects of Tolserol (3 ortho-toloxyl-1, 2-propanediol). This drug has been reported to have a beneficial relaxant effect on muscle spasm, spasticity and rigidity, and an ameliorating effect on tremor and involuntary movement of extrapyramidal origin, as well as a favorable action upon behavior. The average dosage of the drug, computed on Fried's rule, was 33 mg. per pound per twenty-four hours administered orally in solution in 6 divided doses daily. A control group was used. All children were given complete neurologic, orthopedic and psychomotor examinations as well as personal-social ratings and laboratory studies before, during and after the study. There was no definite over-all improvement noted on the drug. However, there was a diminution of exaggerated reflexes in 56.25% of the children. Orthopedic improvement was slight. There were no significant differences in the psychomotor tests on or off the drug although locomotion tended to be slightly improved. Behavior changes were not appreciable and there were no noticeable toxic effects. 5 references. 1 table.—**AUTHOR'S ABSTRACT.**

*Tolserol was supplied through the courtesy of Dr. E. Sidney Newcomer, E. R. Squibb and Sons, 745 Fifth Ave., New York 22, N.Y.

Poliomyelitis: Early Diagnosis and Early Management of Acute Cases. JOHN R. PAUL, YALE UNIVERSITY SCHOOL OF MEDICINE, NEW HAVEN, CONN. *Ann. Int. Med.* 30:1126-33, June 1949.

Both adult poliomyelitis and the incidence of nonparalytic cases have become more common during recent years, the percentage of cases over 15 years of age having increased steadily. The reason is unknown but many more nonparalytic cases now require diagnosis than in former years. Former methods of diagnosing poliomyelitis are now inadequate because they were based upon the infantile form of the disease and do not fully cover the adult case. Symptomologic factors differ in age groups. The classical diphasic course occurs chiefly in children under 10 or 12 years of age. The onset of both phases in this age group is commonly sudden whereas the onset is insidious and accompanied by pain in the back in over one-half the cases over 15 years old. In the adult case, the patient drags around for several days with the diagnosis in doubt. During this time, he is subject to more or less exertion and trauma which may act deleteriously upon the subsequent disease. The fever which commonly occurs in the first phase of the childhood type of disease is frequently absent in the adult case which commonly manifests itself by the insidious development of second phase symptoms such as stiff limbs, transitory sensory changes, paresthesias, restlessness and pain, especially back pain. Such symptoms are often mistakenly diagnosed as ruptured disk, renal colic, etc. The points in the physical diagnosis of the second stage are well known and are not described here except to emphasize the undesirability of repeated and exhausting physical examinations, muscle tests and lumbar punctures in a patient who may be in a critical stage of the disease.

Early treatment is made difficult by the impossibility of determining whether a given case of sore throat, fever, headache, and vomiting will or will not progress to ultimate paralysis. All cases of brief febrile illness should be considered as suspicious in the presence of a poliomyelitis epidemic. They should be treated more cautiously than usual, kept under observation for about ten days for development of second phase symptoms, and their physical activity should be restricted. Such cases are important from both the public health and personal viewpoints but a public diagnosis of poliomyelitis is unnecessary and should not be made during this observation period. The question of hospitalization for nonparalytic cases is controversial and believed to be largely dependent upon availability of home and hospital facilities. Common-sense isolation is advisable but extreme precautions are unnecessary. There is no specific treatment. Fluid and salt intake should be adequate. Pain is controlled best by application of moist heat. The use of prostigmine and curare is still experimental. During epidemics, a team composed of an orthopedist, physical therapist, especially trained nurses and others may be necessary to handle poliomyelitis patients properly. 16 references. 2 figures.

The Treatment of Parkinsonism with Artane.* ROBERT S. DOW AND HERBERT ROSENBAUM, PORTLAND, ORE. *Northwest Med.* 48:699-701, Oct. 1949.

Artane trihexyphenidyl has resulted in definite improvement in the rigidity and tremor in 8 out of 10 patients with parkinsonism who were subjected to controlled observations before and after its use. In some of these it appears to be superior to other medications previously available. In some it is most useful in conjunction with other older preparations. A tendency for some patients to report greater improvement soon after beginning therapy is noted. This is characteristic of this disorder and makes evaluation of any new remedy difficult. In a few the improvement appears to be progressive during continuation of the drug. It is our opinion that Artane deserves an important place in the therapy of parkinsonism, and should be given a trial in every case. 6 references.—AUTHOR'S ABSTRACT.

*Artane trihexyphenidyl is a product of Lederle Laboratories, Division of American Cyanamid Co., New York 20, N. Y.

Treatment of Parkinsonian Tremor by Peduncular Pyramidotomy (*Traitement du tremblement Parkinsonien par la pyramidotomie pedonculaire*). GERARD GUIOT AND JEAN PECKER, PARIS. *Sem. hôp. Paris* 25:2120-24, Aug. 22, 1949.

In the operation employed by the authors in the treatment of the tremor of parkinsonism, the section of the pyramidal fibers was done at the base of the cerebral peduncle. This operation has been done in only 2 patients, in both of whom the tremor was unilateral. In both cases there was definite objective and subjective improvement, but a pyramidal syndrome developed in the side operated on in which contracture predominated over paralysis. The paralysis in both cases showed a decrease from above downward, i. e., the facial paralysis was more marked than that of the upper extremity and that of the upper extremity more marked than that of the lower extremity; this is contrary to the accepted view of the arrangement of the pyramidal fibers at the base of the peduncle. While in the cases reported the results of the operation appeared to be favorable in relation to the tremor, the recent advances in the medical treatment of parkinsonism indicate that operation should be done only for residual tremor not responding to medical treatment. In the cases reported the parkinsonism affected only one side, and the authors are of the opinion that a bilateral pyramidotomy is not indicated, on account of the possibility of contractures of all four extremities resulting from the operative procedure. 9 figures.

Combined Lateral and Ventral Pyramidotomy in Treatment of Paralysis. JUDAH EBIN, M.D., NEW YORK, N. Y. *Arch. Neurol. & Psychiat.* 62:27-47, July 1949.

It has been suggested by Bucy that tremor is transmitted from the Betz cells of area 4 γ through the large fibers of the pyramidal tracts. This is based on his own experiences with excision of area 4 γ and those of Putnam in section of the

lateral pyramidal tract, in the upper cervical region of the spinal cord, in cases of paralysis agitans. However, lateral pyramidotomy does not interrupt all of the fibers arising from the large Betz cells of area 4 γ , as the ventral and ventrolateral pyramidal tracts remain intact. Because of the peculiarities of pyramidal tract decussation, complete interruption in the upper cervical cord of all pyramidal tract impulses to one side would entail section of the ipsilateral lateral tract and the contralateral ventral and ventrolateral tracts.

A technic has been devised to perform this through a single cord incision which crosses the midline. This procedure, combined lateral and ventral pyramidotomy, has been used in 11 cases of paralysis agitans presenting unilateral or bilateral tremor and/or rigidity with almost complete disappearance of tremor and rigidity on the operated side. Motor power returns, on the average, to approximately 35 to 40% of normal. In one case with bilateral symptoms, the procedure was done bilaterally with an excellent result. 21 references. 4 figures. 3 tables.—AUTHOR'S ABSTRACT.

Artificial Jaundice in the Treatment of Central Motility Disorders. Preliminary Report (*Künstliche Gelbsucht zur Behandlung von Bewegungsstörungen zentralen Ursprungs. Vorläufige Mitteilung*). H. URBAN, SINGAPORE. Wien. Zschr. Nervenhlk. 2:349-63, Heft 3, 1949.

It is possible to produce obstructive jaundice in the human subject by ligating the common duct. This observation can be regulated and the process is reversible. The application of this method of treatment to 2 cases of parkinsonism resulted in disappearance of tremor and diminished rigidity. Natural, apparently infective, jaundice had the same effect in another case of tremor following brain injury. In one young patient suffering from multiple sclerosis the nystagmus disappeared and ataxia showed remarkable improvement during the persistence of jaundice, but recurred when this subsided. In another patient with multiple sclerosis no jaundice developed in spite of ligation of the duct, and the clinical symptoms were only slightly affected.

In a case of multiple sclerosis of long duration, the artificial jaundice treatment had no effect. In this case the cirrhosis of the liver found at operation suggested that this was an atypical case of Wilson's disease. The author concludes that jaundice probably exerts a curative effect not only in arthritis and stenocardia, but also in nervous diseases. A more conservative method of producing therapeutic jaundice should be devised, possibly by isolation of the active therapeutic principle involved. 10 references.

Treatment of Common Forms of Meningitis. JOSEPH YAMPOLSKY, ATLANTA, GA. Med. Clin. North America 33:871-81, May 1949.

The four forms of meningitis discussed in this paper are: meningococcus, pneumococcus, influenzal and tuberculous meningitis. At present great response

is found from the use of penicillin and sulfadiazine in meningococcus meningitis, good response from sulfadiazine and streptomycin and Alexander's serum in influenzal meningitis, fair response from penicillin and streptomycin in pneumococcus meningitis and also from the use of streptomycin and sulfadiazine or streptomycin and promizole or paramino-salicylic acid in tuberculous meningitis.

The results obtained in meningococcus meningitis have been highly encouraging. The author's treatment consists of the use of sulfadiazine in the dosage of 0.1 Gm. per pound of body weight given orally if the patient is rational, or otherwise in the form of sodium sulfadiazine intramuscularly. Penicillin G, 20,000 U, is given intramuscularly every three hours and in some cases penicillin is given intrathecally in the dosage of 5,000 U diluted in 8 to 10 cc. of water. It is possible that intrathecal therapy can be completely avoided in meningococcus meningitis as good results can be obtained in some cases with the use of the other treatment alone.

In pneumococcus meningitis penicillin is given in the dosage of 25,000 U every three hours intramuscularly with 5,000 U intrathecally. Sulfadiazine can be given in the form of sodium sulfadiazine 0.1 Gm. subcutaneously when it cannot be given orally, and the same dosage can be applied by mouth. Miller has shown that, while certain bacteria show resistance to penicillin, the latter develops very slowly and for that reason penicillin can be used for a long time in the treatment of pneumococcus meningitis; failure in its treatment occurs primarily when the original focus of infection is not found, and while the spinal fluid may be negative at times, the same organisms return unless the original source of infection is eradicated. It is for that reason that pneumococcus meningitis has not been easily amenable to our present-day treatment.

In influenzal meningitis the type B is usually the causative agent in the majority of cases. The sensitivity of the hemophilus type B to streptomycin has been shown by many writers. The author uses sulfadiazine and streptomycin for the most part. Streptomycin may be used either in the form of sulfate or hydrochloride. From 50 to 100 mg. of streptomycin may be dissolved in 5 to 10 cc. of water for intrathecal injections, and as much as 100 to 150 mg. may be dissolved in as little as 1 cc. for intramuscular injections. The author's treatment has been as follows:

1. Sulfadiazine is given in the form of sodium sulfadiazine, 0.1 Gm. (1½ gr.) per pound of body weight subcutaneously, or in the form of infusion if the patient is not able to retain medication by mouth. Otherwise, sulfadiazine is given by mouth in the same dosage. This is continued for about ten days following the discontinuance of the use of streptomycin.

2. Most patients usually receive 5,000 U of penicillin intrathecally when the lumbar puncture is done and until a positive culture for *Hemophilus influenzae* is reported. We believe it is best to avoid the use of streptomycin until we have definite evidence of the presence of the latter.

3. For streptomycin therapy, 1 Gm. is dissolved in 8 cc. of distilled water or Ringer's solution and 1 cc. is given every three hours intramuscularly for four to seven days, according to the symptoms presented. Intrathecally, 32 mg. of streptomycin are given daily for the same number of days. Since streptomycin-

resistant organisms develop rapidly, and since infants tolerate antibiotics more easily than adults, it is best to give larger doses as quickly as possible in order not to allow resistant colonies to develop. It is surprising how few toxic symptoms can be seen even after such large doses of streptomycin, if they are used for only a short period.

4. We have used Alexander's rabbit serum in only 2 cases in which spinal block was present and no improvement resulted. There is no question that the serum is of value, but the difficulty and expense connected with its use, the sensitivity of certain patients to it, and the fact that simpler methods of treatment are available, lead us to believe that in time its use will be abandoned.

Our results with sulfadiazine and streptomycin, which are reported elsewhere, show a complete cure in 19 of 22 cases. Of the 3 patients who did not recover, one had a fulminating infection and died within a few hours of admission and 2 arrived with spinal block and did not respond to the treatment. Toxic symptoms following the use of streptomycin and sulfadiazine have been reported as follows: 1) disturbance of vestibular function; 2) deafness; 3) renal damage, and 4) cutaneous rashes. It is surprising, however, that with the use of large doses for the short period of time, very few toxic symptoms and no residual symptoms were noted in our cases.

The treatment of tuberculous meningitis has presented some very baffling problems; streptomycin used both orally and intrathecally in conjunction with promizole gives the best hope for cure. The method outlined by Lincoln and her associates has probably given the best results so far. Promizole is given at six to twelve-hour intervals in daily doses from 0.5 to 1 Gm. Sometimes as much as 5 Gm. daily is given to raise the blood level up to 2 or 3 mg. per 100 cc. After six months, a daily maintenance dose of 1 Gm. is employed. Streptomycin is given from 1 to 2 Gm. daily, according to the age of the patient, and is divided into two doses. All patients received 0.1 Gm. streptomycin intrathecally during the first week of treatment. If difficulty arises, the intrathecal therapy is used on alternate days. After six weeks, intrathecal treatment is given once every three or four days, but intramuscular treatment is continued for six months. If toxic symptoms appear, the dose of streptomycin is reduced or may be discontinued for a few days. If para-amino-salicylic acid is used in conjunction with streptomycin, the dose is about 0.12 Gm. per pound of body weight for about six months. As yet very few authors have reported such excellent results and that is due primarily to the fact that the prolonged use of streptomycin causes marked resistance of the organisms and the toxicity of the drug may cause one to discontinue its use from time to time.—AUTHOR'S ABSTRACT.

Serum Precipitable Iodine in Patients with Tumors of or Near the Pituitary. J. P. PETERS, W. J. GERMAN AND E. B. MAN, NEW HAVEN, CONN. *J. Clin. Endocrinol.* 9:1292-1313, Dec. 1949.

The endocrine functions of 20 patients, 19 of whom actually or presumably had tumors or other lesions in or adjacent to the pituitary gland, have been

assessed. The concentration of precipitable iodine in the serum, SPI, was frequently reduced to levels characteristic of hypothyroidism, while the functions of the gonads and the adrenal cortices were less frequently affected. Basal metabolism, when it was measured, was usually low also, but serum cholesterol was usually within normal limits and clinical symptoms and signs of hypothyroidism were lacking. SPI did not respond or responded only transiently to administration of thyroid substance. The significance of the deficiency of serum iodine is discussed. It seems probable that there is a true deficiency of thyroid function due to inhibition of glandular activity from lack of thyrotrophic hormone, but the ability to dispose of thyroid hormone is not abolished. 27 references. 1 figure. 2 tables.—AUTHOR'S ABSTRACT.

Epidural Injection of Hypertonic Sodium Chloride Solution in the Treatment of Sciatica and Other Root Pains in the Lower Limb. JAMES H. YOUNG, PERTH, AUSTRALIA. *M. J. Australia* 2:530-32, Oct. 8, 1949.

Epidural injection has previously been considered to act by stretching nerve roots, by breaking down adhesions between nerve roots and their foramina, or by displacing a nerve root from a protrusion. However, myelography showed that the theca was compressed in an anteroposterior direction during epidural injection and that there would be little if any stretching of nerve roots. At operation it seemed hardly likely that epidural injection would break down adhesions around nerve roots in patients with degenerated disks or that the injected fluid would displace a nerve root from a protrusion.

Edema of a nerve root is known to occur. Does epidural injection act by abolishing it? Injection of suspensions of Indian ink and solutions of methylene blue at autopsy showed that the injected fluid did not pass out via the foramina but remained in the epidural space and presumably produced its effect there. During life it was found that the fluid remained in the epidural space for nine to twelve hours, long enough to reduce edema by osmosis. In the absence of neurologic symptoms or signs, pain radiating from the back to the lower limb is possibly a referred pain and in such cases epidural injection has been found valueless.

Sciatica is defined as a root pain accompanied by sensory, motor or reflex disturbances and usually due to protrusion or degeneration of a lower lumbar disk. If sciatica is accompanied by acquired scoliosis there is protrusion of a disk and epidural injection has again been found valueless. If there is no acquired scoliosis, sciatica is usually due to a small protrusion or to degeneration of a disk with edema of a nerve root. These patients are subdivided into two groups. In the first group, pain was not present at rest but only in certain postures or with certain movements. These symptoms could be due to a small protrusion. Twenty-seven such patients were treated with epidural injection of 60 cc. of 2.5% sodium chloride under pentothal anesthesia followed by rest in bed for a week; 8 obtained relief but it was not possible to determine whether relief was due to the injection or to rest. In the second group, pain was constant and not relieved by rest. Such symptoms could be due to edema of a nerve root. Of 71 such patients, 41

were relieved within twenty-four hours by epidural injection of hypertonic sodium chloride. It is suggested that epidural injection of hypertonic sodium chloride acts by reducing edema of a nerve root by osmosis and it is indicated in patients with constant root pain in the lower limb, provided there is no scoliosis. 11 references. 1 table.—AUTHOR'S ABSTRACT.

Intrathecal Alcohol in the Treatment of Spastic Paraplegia. IRVING

S. COOPER AND THOMAS L. HOEN, U. S. NAVAL HOSPITAL, ST. ALBANS, L. I., N. Y. *J. Neurosurg.* 6:187-90, May 1949.

Relief of the extreme spasticity and mass reflex complicating many cases of paraplegia is often an urgent necessity. Both anterior rhizotomy and section of the posterior nerve roots for this purpose have certain drawbacks and cure has been unsatisfactory. The intrathecal injection of absolute alcohol in 24 patients, with immediate relief of spasticity and mass reflexes, was reported by Shelden and Bors. Results following the subarachnoid injection of 95% alcohol in 8 patients with extreme spasticity complicating paraplegia are described and one case is presented.

In this series, the patient was placed on one side of the bed and foot of the bed elevated 18 inches to permit the alcohol to rise to the caudal section of the thecal sack. Alcohol 95% was slowly introduced intrathecally through an 18-gauge spinal needle at the rate of not over 1 cc. every minute. The patient's sensory level was checked by an assistant to prevent its rising above the previously established level. Effort was also made to straighten the lower extremities after injection of each cubic centimeter. The injection was stopped when the lower extremities became flaccid and could be easily straightened. Complete flaccidity follows injection of 7 to 12 cc. Elevation of the foot of the bed is continued for twenty-four hours to permit fixation of the alcohol.

The flaccidity lasted at least six months in this series. Marked improvement occurred in the spasticity, treatment of decubitus ulcers, development of an automatic bladder, and physical rehabilitation during this period. One patient died from intercurrent urinary infection and additional treatment was required in another. A twelve to eighteen-month follow-up of the remaining 6 patients showed no recurrence of spasticity. The urinary bladder became hypotonic or tabetic following the injection but regained sufficient tone in six to eight months to automatically expel urine at periodic intervals. The treatment was considered life-saving in 3 patients because of the extreme debility induced by the spasticity and mass reflex. Advantages of alcohol injection over anterior rhizotomy are the immediate production of flaccidity with little or no additional permanent loss of neurologic elements and the fact that it can be used in extreme cases which cannot stand operation. Results obtained in this series confirmed the findings of Shelden and Bors. 11 references.

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BOOK REVIEWS

Paralysis Agitans; A Clinical and Genetic Study. HENRY MJÖNES.
Translated by Erica Odelberg, Ejnar Munksgaard, Copenhagen, 1949.

This monograph originates from the Psychiatric Clinic of Karolinska Institutet, Stockholm. For this study of paralysis agitans the case records of a number of Swedish clinics were reviewed for suitable material. Dr. Mjönes spent a number of months traveling about Sweden finding and examining the patients and their relatives. He excluded from the study all cases of exogenous origin (i. e., patients in whom a connection between the disease and an infection, intoxication or trauma could be established). The author's material thus consists of patients with cryptogenic paralysis agitans and arteriosclerotic parkinsonism: there are 250 proband cases and some 3000 relatives. The author discovered among the relatives 162 secondary cases belonging to 79 families. From a gen-

etic-statistical analysis Dr. Mjönes concludes that in families with secondary cases the mode of inheritance is most likely monohybrid autosomal dominance. The author found considerable variability in the manifestations of paralysis agitans of hereditary origin. Tremor was the most constant and in some cases the only symptom. Mental symptoms of reactive or organic type occurred in approximately 40% of the patients. The author believes that arteriosclerotic parkinsonism may be a condition in which there is simply a coincidence between paralysis agitans and cerebral arteriosclerosis.

GEORGE D. WEICKHARDT, M.D.
St. Elizabeths Hospital

Observations on the Pathology of Hydrocephalus. DOROTHY S. RUSSELL. Medical Research Council Special Report Series No. 265. 1949. London, His Majesty's Stationery Office.

This monograph represents an expansion of a series of three lectures given at the Nuffield Institute for Medical Research in 1942. It seems designed to meet a reproach by Spiller who commented in 1902: "It is not necessary to study the different works on hydrocephalus very exhaustively to find that actually observed lesions are much rarer than theories explanatory of the causes of hydrocephalus."

The monograph is built around 41 detailed and well-illustrated case reports. They have been selected from a larger series in such a way as to illustrate to best advantage each type of pathologic condition, i. e., each type of obstruction in the pathway of the cerebrospinal fluid.

The congenital types of hydrocephalus are exemplified by the various forms of aqueductal obstructions or stenosis, by cases of septum formation at the foramen of Magendie and by cases with spina bifida and Arnold Chiari malformation. The author does not accept the theory of caudal traction for the Arnold Chiari malformation. But the close association between hydrocephalus, Arnold Chiari malformation and meningo-myelocoele is emphasized. The author has not found any reason for abandoning her theory of 1935 concerning the development of hydrocephalus in Arnold Chiari cases: "A communicating type of hydrocephalus may arise from displacement of the fourth ventricle foramina into the spinal canal, when accompanied by obstruction to the reflux of cerebrospinal fluid into the cranial cavity due to plugging of the foramen magnum by the Arnold Chiari malformation."

A separate chapter is devoted to gliosis of the aqueduct. The author is inclined to think that this gliosis does not result from malformation. It is probably caused by some low-grade inflammatory process. This damages the very sensitive ependyma while stimulating the subependymal glia to proliferate. Such ependymitis may be widespread outside the iter of Sylvius.

The role of intracranial birth hemorrhage is emphasized and related to the

acute postoperative aseptic meningitis of Finlayson and Penfield.

The clinical and pathologic aspects of postmeningitic hydrocephalus are considered at some length. The author's complete collection contains 23 such cases. Eleven of these cases occurred in children 6-years-old or younger. They were practically normal at birth. Gradual expansion started after a fairly long latent interval. Spinal fluid was always normal. Only in four of these cases could a definite history of meningitis be elicited. But the autopsy disclosed in all cases a leptomeningeal thickening over the basal cisterns or over the cisterna ambiens and the development of focal cystic arachnitis. A neonatal meningitis, mild and unrecognized, is tentatively assumed to be responsible for these changes. Craig has shown that neonatal meningitis may be a surprise finding at autopsy. Such cases had not had any fever or only a terminal rise. The spinal fluid had always been under normal pressure.

Dural sinus thrombosis may in some instances lead to a moderate degree of hydrocephalus, but here the ventricular system tends to return to its normal size when the intracranial pressure is lowered by surgical means or when canalization of the thrombus takes place. In cases of so-called "otitic hydrocephalus" there seems to occur a similar phase of expansion while intracranial pressure is mounting. The ventricles return to normal size as the thrombus becomes canalized and the pressure falls.

Intracranial tumors causing hydrocephalus loom large in this series because of the author's association with an active neurosurgic service. Only three detailed case reports are included in this presentation. Of these the first showed marked aqueductal block by gliomatous tissue (or gliosis?) with great distention of the third and the lateral ventricles. In the second case obstruction of the aqueduct was due to a polypoid glioma blocking the entrance to the iter. The third of these cases showed hydrocephalus from diffuse gliomatosis of the basilar leptomeninges with an intramedullary oligodendroglioma of the cervical cord.

In her concluding remarks the author states that "modern chemotherapeutic treatment of infective meningitis saves many lives that would have been lost in former days, but unless treatment is optimal residual lesions must be anticipated; hence it may reasonably be expected to yield a substantial increase in this form of hydrocephalus."

Many important details of this excellent monograph are not well suited for such a brief abstract. They will have to be followed up in the original text.

KARL H. LANGENSTRASS, M.D.
St. Elizabeths Hospital

A Textbook of Neuropathology with Clinical, Anatomical and Technical Supplements. BEN W. LICHTENSTEIN, B.S., M.S., M.D. 1949, Philadelphia and London, W. B. Saunders Co. \$9.50.

According to the author this textbook is intended for the medical student, the psychiatrist, neurologist, neurologic surgeon and general pathologist, but not for the seasoned neuropathologist. We learn further that "the prime object of

this book is to simplify the subject for the elementary student, rather than to confuse him with its many complexities." One may be inclined to question whether this latter object has always been attained within the pages of this book.

The subject matter is presented in seventeen chapters, a few of these brief, others containing some seventy pages. These chapters are preceded by a greatly detailed table of contents covering nearly a dozen pages. There is also a well-arranged index of about fifteen pages. Several hundred reproductions of macrophotographic and microphotographic material in black and white furnish excellent illustrations for the text. A list of this wealth of pictorial matter might be considered a desideratum for the second edition, which will probably soon be published. The book is of course very well-printed and bound. A pleasing feature—among others—is the almost complete absence of typographical errors. There is one exception, however, that seems intended to prove the rule: the nucleus of Goll appears at least on two occasions as "nucleus of gracilis."

The keynote of this fine textbook seems to be most clearly expressed in the following quotation from its introductory chapter: "The study of neuropathology is a tremendous undertaking and very few become truly masters of the subject. The neuropathologist does not exclusively study diseases of the nervous system, but rather diseases in which the nervous system is affected. For in the final analysis neuropsychiatry is to-day, as it was when it first became a specialty, a branch of internal medicine. The majority of cases seen by the neurologist exhibit pathologic alterations of the nervous system brought about by disorders which are basically non-neurologic, such as syphilis, tuberculosis, arteriosclerosis, arterial hypertension, vitamin deficiency, renal insufficiency, systemic intoxication, leukemia and Hodgkin's disease. It is obvious, therefore, that a thorough knowledge of general pathology is indispensable to the understanding of diseases affecting the nervous system. Nor does the neuropathologist study morbid anatomic changes exclusively. In close cooperation with the bacteriologist, immunologist, physiologist, psychologist and psychiatrist he studies disease of the nervous system in its broadest aspects."

Such a type of investigation and presentation, such a "broadest aspect," has been very successfully displayed and maintained on a constant high level throughout this book. Special and particularly pleasing features are the following: the fifteenth chapter is called a "Clinical Supplement." It contains an elaborate glossary of neurologic syndromes covering over a hundred items; there is further a very clear and easily readable chapter on normal neuro-anatomy. It will, no doubt, be greatly appreciated and enjoyed by many readers; finally, there appears on some thirty pages a clear and concise methodology of neuro-histologic procedures, reflecting those in regular use at the Illinois Neuropsychiatric Institute.

Altogether this book represents a very praiseworthy accomplishment from every possible viewpoint. It is highly recommended.

KARL H. LANGENSTRASS, M.D.
St. Elizabeths Hospital

The Clinical Examination of the Nervous System. G. H. MONRAD-KROHN, M.D., F.R.C.P., PROFESSOR OF MEDICINE IN THE ROYAL FREDERICK UNIVERSITY, OSLO, ETC. Ninth Edition, with One hundred and Thirty-one Illustrations. 1948, London, H. K. Lewis & Co., Ltd. 459 pp.

The ninth edition of this well-known handbook follows the previous edition by less than a year. Since its first publication in 1921 this book has found widespread popularity in the English-speaking world and has been translated into French and Spanish. One finds but few changes since the eighth edition. Some of the illustrations have been re-arranged and a few new ones added in the chapter on cerebral pneumography. A short section on electro-encephalography has been included.

As a guide to the clinical examination of the nervous system, this book by Monrad-Krohn remains unequalled in style, clarity of description and comprehensiveness. One wishes that the binding of such a book were sturdy enough to withstand its constant use.

GEORGE D. WEICKHARDT, M.D.

Posttraumatic Epilepsy. A. EARL WALKER, M.D., FORMERLY PROFESSOR OF NEUROLOGICAL SURGERY, UNIVERSITY OF CHICAGO, CHICAGO, ILLINOIS; NOW PROFESSOR OF NEUROLOGICAL SURGERY, THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND. Charles C Thomas, Springfield, Ill. 90 pp.

This book is a short but comprehensive monograph on the subject of convulsive disorder following trauma to the head. Much of the information was acquired as the result of the author's experience at the Cushing General Hospital, which in 1945 was designated by the United States Army as a center for treatment of patients with post-traumatic epilepsy.

The author believes that the treatment of this disorder is primarily medical. Operative intervention is indicated only to repair a surgical lesion such as a cranial defect, to remove foreign bodies, or in the event that medical management is ineffective in controlling the convulsive seizures. Cranioplasty is frequently advisable not only to restore the contour of the skull and improve the intracranial hydrodynamics, but because it decreases or abolishes convulsive seizures in a certain percentage of cases. The author advises that if the injury is relatively recent and foreign bodies can be removed without excessive damage to the normal brain, a clean surgical extirpation of the diseased tissue and fragments is advisable. If, however, six months or more have elapsed since the injury and attacks persist in spite of drug therapy, the cortex may be explored and the epileptogenic focus excised at the time the foreign bodies are removed. The technic of cortical exploration for an epileptogenic focus by electrical stimulation and electrocorticography is described. The author has used several technics of cortical resection, namely excision of the focus and the scar to ventricle, removal of the focus and the scar to normal white matter or subpial resection of the focus. After operation, medical management of convulsions must be continued. If no further attacks occur, the medication may be decreased at the end of two years and gradually eliminated over another two-year period.

In the Cushing Hospital series of 238 cases of post-traumatic epilepsy, 66 were considered failures from the standpoint of medical control of seizures. Of these 40 were subjected to surgical removal of an epileptogenic focus. Approximately one year after operation one-third of the patients in this group have had no further attacks and another fifth have had only one attack or the aura of their attacks.

On the whole, the author's attitude toward the problem of post-traumatic epilepsy seems practical and conservative. Our present knowledge of this subject is well summarized.

GEORGE D. WEICKHARDT, M.D.

Patterns of Panic. JOOST A. M. MEERLOO, M.D., NEW YORK. International Universities Press, Inc. 120 pp. \$2.00.

Dr. Meerloo has again contributed to the literature from his own experiences in Holland and England during World War II, and from his wide experience as a psychiatrist. This little book, he tells us, is designed especially "for social workers, soldiers, Red Cross personnel and all those who are mobilized in times of catastrophe."

He discusses the various types of panic and their manifestations, considering too the means of controlling and preventing panic. One chapter is devoted to the present parlous state of affairs, under the title "Our Panicky World." He concludes: "Out of the study of panic one learns again to consider how unsteady human formations are, how easily they can be undermined even by mental attacks. However, mankind has a weapon against panic: conscious, well-planned organization and leadership on the basis of divided responsibility."

In these times especially the volume deserves a wide circulation.

WINFRED OVERHOLSER, M.D.
St. Elizabeths Hospital

SEXUAL

by Louis S. London, M.D.

This book presents findings and interpretations based upon more than a quarter of a century of research, clinical and medico-legal experience by Dr. Louis S. London and more than fourteen years of similar experience by Dr. Frank S. Caprio. The book consists chiefly of case studies and reveals facts such as no theory can supplant.

Today, we know that homosexuality and other sexual deviations are symptoms of an acquired neurosis and as such are amenable to psychotherapy. Before there can be intelligent treatment, clinical knowledge must become available. We need not merely a descriptive statement of situations, but facts psychodynamically interpreted, facts which may clearly reveal the etiology and pathology of the phenomena under scrutiny.

This book presents, for professional use, an encyclopedic series of cases of sexual deviations so that the reader may be assisted in recognizing and dealing with all phases of this subject and in aiding the medical profession generally as well as other related professional groups in understanding that the sexual deviate is indeed a very sick individual, blind to the true causes of his affliction, and in tragic need of psychiatric treatment.

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G. Necrophilia and Pyromania	P. Pederasty (Sodomy)	Y. Prostitution, Pandering and White Slavery
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"A safe and effective drug to use in controlling weight gain  during pregnancy."

Coopersmith, B.I.: *Dexedrine and Weight Control in Pregnancy*, *Am. J. Obst. & Gynec.* (Oct.) 1949

Coopersmith reports the successful use of 'Dexedrine' Sulfate Tablets for weight control in a series of 100 obstetric patients. Because 'Dexedrine' curbed appetite and thus enabled these patients to follow their prescribed diets, control or reduction of weight was achieved in virtually all cases. 

It is noteworthy that other methods, including the use of thyroid, had previously failed to prevent excessive weight gain in these same individuals.

"Thyroid", Coopersmith states, "increases the appetite . . . and is toxic in many cases."



"Dexedrine Sulfate", the report concludes, "is a safe and effective drug to use in controlling weight gain during pregnancy."

Smith, Kline & French Laboratories, Philadelphia

Dexedrine* Sulfate tablets • elixir

for control of appetite  in weight reduction

*T.M. Reg. U.S. Pat. Off. for dextro-amphetamine sulfate, S.K.F.